

153

THE BOSTON Medical and Surgical JOURNAL

VOLUME 190

JANUARY 31, 1924

NUMBER 5

Original Articles

A REVIEW OF ANOTHER YEAR'S WORK WITH THYROID DISEASE

BY FRANK H. LAHEY, M.D., BOSTON

In a clinic where thyroid disease may be observed in a large number of cases, and where it is studied by a group organized for this purpose, it seems worth while to present from time to time to the medical community in which the work is done a brief summary of the work, with such deductions from it as we feel justified in drawing, based upon that work or upon our previous experience with the disease. Such a paper was published a year ago¹ and the custom will be continued from time to time as changes in our ideas and management of this group of cases occur.

We have been impressed particularly in the last year with the fact that the seriousness of cases of thyroidism is being appreciated by the medical community at large and that active measures to check the progress of the disease are being instituted earlier in an apparently much larger percentage of cases than heretofore, owing, no doubt, to increased knowledge and wider interest in this subject.

We believe that fewer and fewer patients are being subjected to the so-called "rest" or medical treatment, a method with which we have but little sympathy, resulting, as it does, for these patients—most of whom can ill afford it—in a distinct loss in time and work and a very material loss in money. In a great many cases, unfortunately, the expenditure has not only been wasted, but the delay has brought the patient to operation a much poorer risk, often with a cardiac complication as a consequence of the postponement. Another sad feature of the wasted expenditure is that many of these patients come to operation only after their financial resources are exhausted. As far as the operation is concerned, this is of little importance, since facilities for the free care of such patients can always be arranged. Post-operative rest, however, with gradual resumption of activities, has been, in our experience, an essential factor in the complete recovery, and it is here that the evil effect of the economic loss is most evident. While free operative care and immediate post-operative care are always available for these patients, a period of rest without the necessity of wage-earning is much more difficult and in many instances practically impos-

sible to obtain, so that the patients often return to work much earlier than would be to their best advantage.

We have seen in the past years and still continue to see quite a considerable group of toxic cases who have been or are upon thyroid extract. We have recently had one case of primary hyperthyroidism who had received in large daily doses a total of two hundred and fifty grains of thyroid extract previous to coming to our clinic. Needless to say, her symptoms had been much intensified by this medication. Fortunately in a majority of cases the patients themselves appreciate that they are made worse by this medication, and voluntarily cease taking it. We have stressed on every possible occasion the perniciousness of this method of treatment; but again we wish to emphasize the fact that the administration of thyroid extract to toxic cases is dangerous, unjustifiable, and subject to possibly serious consequences.

A somewhat similar point deserves emphasis also. The work with iodides of Kimball and Marine in Akron and its further application in Switzerland, with its possible diminution in the incidence of endemic goiter in goiter regions, offers a real boon to the residents in those regions. Yet, because of the improper comprehension of the minute doses required for this effect, there appears to be a tendency to give prolonged courses of iodide treatment, particularly to the non-toxic type of thyroid. That such prolonged iodide treatment may convert non-toxic into toxic goiter has been known for some time, and during the past year particularly we have on a few occasions seen cases in which this effect has been demonstrated. We, therefore, also wish to repeat and stress the fact that the prolonged administration of iodides may convert a simple non-toxic colloid goiter into an actively toxic one.

Basal metabolism estimations have continued to be not only of the greatest assistance but have proved of such increasing value to us that we cannot conceive of our being successful in conducting a thyroid clinic without this facility—so essential is it in the proper diagnosis and management of thyroid disease. We said last year that we did not believe that thyroid intoxication existed in the absence of an increase in the *true* basal metabolic rate. Of that we are increasingly sure, and we now feel certain that when the basal metabolic rate fails to reach normal after thyroidectomy, a cure has

RATE OF BASAL METABOLISM

Name: Miss C. G.

Age: 18 years.

Diagnosis—Primary Hyperthyroidism.

Date	B. M. R.	Pulse Rate	Body Wt.	Operation
7-24-21	+42	120-126	112.7 lbs.	Ligation both superior poles.
7-25-21				
8-1-21	+44	108-118	103.75 "	
9-5-21	+40	98-104	112 "	
9-13-21	+39	108-112	113 "	Sub-total thyroidectomy.
9-14-21				
9-27-21	+25	78-84	106.8 "	
7-7-22	+31	80-86	113 "	
7-8-22				Removal of thyroid tissue from both lobes.
7-14-22	normal	76-80	111 "	
1-14-23	-10	60-68	110.5 "	

Chart showing persistent hyperthyroidism after sub-total thyroidectomy with drop to normal after further removal of thyroid tissue.

not been accomplished, and some degree of hyperthyroidism still persists. Where this situation exists, we have found that further removal of thyroid tissue has in most instances resulted in a clinical cure and a drop in basal metabolic rate to normal. (See Chart.) We believe that the failure to obtain complete clinical cures by surgery in a certain percentage of cases in the past has been due either to insufficient removal of thyroid tissue (a consequence of natural timidity in the inexperienced thyroid operator) or to inaccuracies in diagnosis resulting in operation under the mistaken diagnosis of thyroidism upon patients with neuroses of non-thyroid origin. Elsewhere² we have stated that if one accepts the dictum which we have had proved to us clinically and by many hundreds of pre- and post-operative basal metabolism estimations (we do post-operative follow-up basal metabolisms on all thyroid cases, where possible, every two months for six months and at the end of a year), that a drop to normal in the basal metabolism rate post-operatively occurs coincidentally with a clinical cure, hence indicating the absence of hyperthyroidism—and no one dealing with these cases in large numbers properly checked by basal metabolism estimations can doubt this—if this dictum is accepted, then the absence of an increase in the basal metabolism rate pre-operatively by the same logic indicates likewise the absence of a hyperthyroidism state. Having these facts in mind, and having also in mind the possible inaccuracies of diagnosis in the borderline cases, we desire to state our conviction that without *reliable* basal metabolism estimations, dependable evidence as to pre-operative presence and post-operative absence of thyroidism cannot be obtained.

We have seen a few cases with normal metabolic rates in patients who were quite evidently in a period of remission of the disease. In such cases, with one exception, we have not operated unless there was clinical and metabolic evidence of a return of toxicity. (The one case operated was in a young man who had so many

exacerbations of the disease that he was unable to retain a position long enough to obtain an occupation. These attacks were of sufficient severity to require varying periods in bed and were clinically typical in character.) In general, it is our opinion that in the presence of a normal basal metabolism rate, it is unjustifiable to operate upon the word of someone else that thyroidism has existed in the past. It is better, we believe, to delay, unless some other indication be present, with the possibility that the remission may be prolonged into a permanent one, and to operate only upon definite evidence of a return of the disease.

It has again been our experience that basal metabolism rate alone is not a reliable guide to the extent of surgical procedure which the patient will endure. In reviewing our basal metabolism estimations upon one thousand cases² as would be expected, preliminary surgical measures were carried out upon most of the cases with excessively high basal metabolism rates, and complete surgical procedures upon most of those with low basal metabolism rates. If, however, the level of the basal metabolism rate had been permitted entirely to dictate the extent of the surgical procedure, many deaths would have occurred in those with relatively low rates if the complete operation had been done, and many patients with relatively high rates would have been subjected to an unnecessarily excessive number of divided surgical procedures.

We have seen several pre- and post-operative cases of persistently minus degrees of basal metabolic rate as low as -18 which could be elevated to normal by thyroid feeding, yet which did not demonstrably show evidence of myxedema but appeared and felt better when their basal metabolism rate was elevated to normal by thyroid feeding. It seems possible that the basal metabolism reading may show degrees of thyroid secretion deficiencies which are not frankly evident.

We have again observed this year that following ligations, even though there be clinical improvement as evidenced by gain in weight

and drop in pulse rate, there frequently is little or no drop in basal metabolism rate. In practically all procedures in which any part of the gland is removed, however, an immediate lowering has occurred generally in proportion to the percentage of tissue removed.

We have continued to employ multiple stage measures in the serious cases, and feel even more certain that in the very intensely intoxicated cases it is a certain life-saving measure. Secondary thyroid operations may not be executed with the ease, dryness, and satisfactory appearance with which primary ones may. Since, however, their employment diminishes the mortality of the operation, as it undoubtedly does, the technical difficulties involved in them may be overcome through gentleness, patience and experience.

Elsewhere³ Dr. B. E. Hamilton, cardiologist to our clinic, has reported our experience in operating upon a group of decompensated cardiac cases with thyroidism. We believe that in this group of cases we have made more real progress in the past two years than in any other group. Mention was not made of this group last year as a sufficient number of cases had not been done to justify conclusions. We have now operated upon thirty-one cases of hyperthyroidism who have come to the clinic in varying degrees of decompensation, all incapacitated and many bedridden. With proper pre-operative care they have been operated upon in stages, with but one case dying, and are all now able to be about and, in many instances, do a satisfactory amount of work.

Our efforts in the surgery of hyperthyroidism, in the past few years, have been directed largely toward the lowering of the mortality rate of the operation and the elimination of non-thyroid cases. This having been accomplished, we now feel that we have made real progress in another direction: by reaching out into this thyro-cardiac group which we have hitherto considered inoperable. As Dr. Hamilton has stated, we know of no other group of cardiac cases where it is possible to offer restoration of compensation to such a degree. It is particularly striking to see the capacity for sustained effort which these cardiac cases attain when relieved of their thyroid intoxication and persistent rapid heart rate. There is almost no similar condition in cardiac disease where one may, by a surgical operation, remove a burden from the heart (tachycardia) which is so well calculated to use up its reserve and throw it out of normal rhythm.

We have had no tetany of any type during the past year, and have had but three cases of transitory tetany in all of our cases. We have two cases of post-operative myxoedema, one not anticipated and one anticipated, in the removal of a large intrathoracic colloid mass in a patient previously operated elsewhere, the

thyroid tissue in the normal location having been removed.

We believe that adherence to the technique published by us in *Surgery, Gynecology and Obstetrics*⁴ will safeguard against hemorrhage and hematoma, two very distressing post-operative complications. We have never had a case of bilateral abductor paralysis.

During the year 1922, 450 thyroid operations were done upon 346 patients, with but one death, making an operative mortality of 0.22 per cent. and a patient mortality of 0.28 per cent. Of this group 75 patients had preliminary ligations and 271 had operations directly upon the thyroid gland. Of the 346 cases, there were 150 cases of primary hyperthyroidism, 67 cases of secondary hyperthyroidism, 115 of non-toxic goiter, 3 of thyro-glossal cysts and 5 of malignant thyroid. No cases were rejected as inoperable. Eight cases died before operations could be performed.

The only case dying during the year 1922 was one of colloid goiter in which a considerable portion of the goiter lay in the superior mediastinum and in which infection and mediastinitis occurred. Another case also has died of this disease already in the beginning of this year, (1923). Previous to 1922, mediastinitis had never occurred in our clinic, in spite of the fact that the superior mediastinum had been opened a great many times in the removal of substernal and intrathoracic masses.

In both of those cases, we were not able to accomplish drainage or in any way to limit the course of this infection, once it had become an established process.

Much has been written and at times almost a controversy has existed as to the relative merits of x-ray and surgery. The reports of Holmes and Means⁵ with accompanying metabolism charts indicate that it is possible in certain cases to accomplish a lowering to normal of the basal metabolism rate, and the authors state a relief of symptoms. However, we are definitely opposed to x-ray treatment of thyroidism for the following reasons. The purpose of x-ray treatment in thyroidism is to check thyroid secretion by destruction of thyroid tissue or by inhibition of secretory activity. This destruction of tissue, when it occurs, must be accomplished gropingly, striving to arrive at that desired point where enough thyroid tissue is prevented from secreting, so that hypersecretion is avoided, yet, where sufficient tissue is left unaffected so that myxoedema shall not result. We believe that such a method is not comparable in certainty and accuracy with surgical removal, where one may be sure of the amount removed, the amount remaining, and the supremely important factor of the activity of the type of tissue being dealt with. We further believe that our own unsatisfactory experience with removal of limited amounts of thyroid tissue may

be repeated in many of the cases now considered cured by x-ray treatment. It has been repeatedly demonstrated to us that relief of hyperthyroidism for a considerable period of time may often be accomplished by hemithyroidectomy, but that recurrence frequently occurs in the remaining lobe.

Up to 1921 we employed an operation in which from two-thirds to one-half of one lobe of the thyroid was left. In a great majority of cases this accomplished an immediate relief of symptoms. We have, however, seen a considerable number of recurrences of hyperthyroidism in this remaining lobe of thyroid tissue, a condition which has been relieved by removal of a portion of the remaining lobe. So impressed have we become with the necessity of removal of large amounts of thyroid tissue for rapid, complete, and permanent relief, that we have in the past three years changed and adjusted the technique of our operation⁴ to meet this need, so that the smallest possible amount of thyroid tissue is left that will prevent the appearance of myxoedema. This, we believe, is essential if one is to produce a complete and lasting relief. As stated above, we cannot conceive of accuracy of x-ray dosage to such an extent as to be comparable with surgery in accomplishing this purpose.

Furthermore, during operations upon thyroids we are often surprised to find many cases possessing deep intrathoracic extensions whose presence we in no way suspected previous to operation. These we believe are a serious menace to life and are in themselves an indication for surgery. Not infrequently, also, we have believed that a given case was of the hyperplastic, primary hyperthyroidism type, only to find at operation that it was a case of multiple adenomatous goiter with secondary hyperthyroidism. Both of these types of cases may not be discoverable by x-ray and the adenomata cannot, of course, be removed by x-ray.

As to mortality, we believe that the death rate in our clinic and in any of the large organized clinics dealing with thyroids in numbers is so low that it does not constitute an argument against surgery. In fact, the comparison of mortality in the two methods is by no means possible yet, as when x-ray treatment fails the uncured patient is passed on to the surgeon for operation and any attendant risks.

We believe that the uncertainty of cure, the length of time necessary to ascertain the value of x-ray treatment in a given case, and the loss of time and money constitute weighty arguments against this form of treatment. We have repeatedly stated and firmly believe that hyperthyroidism is a sufficiently serious disease and one so capable of being rapidly converted into a state in which operation is either extremely risky or not possible that the method of treatment to be applied to it is the one which most

quickly, most certainly, and most completely, removes the intoxication which produces the ill effects. That surgery meets that need far more satisfactorily than any other measure, no one who has dealt with these cases in any numbers can doubt.

Further, we do not believe that the arguments against x-ray treatment are by any means offset by the stated benefits of this form of treatment, such as absence of scar, escape from operation, and avoidance of hospital stay.

Finally, we are absolutely convinced that centralization, individualization, and organization are the salvation of goiter cases which are to be treated surgically.

CONCLUSIONS

Thyroid extract is contraindicated in toxic cases and prolonged iodine feeding may convert non-toxic into toxic goiter.

Hyperthyroidism does not exist in the absence of increased basal metabolism rate and cures of hyperthyroidism are not accomplished without returns of basal metabolism rate to normal, provided there are no conditions other than a thyroidism elevating it.

Basal metabolism readings are of great value in neuroses simulating thyroidism, in that the true basal metabolism rate in the neurosis is normal.

Basal metabolism readings uncorrelated are not a reliable guide to the number or extent of operations a patient will stand.

Minus degrees of basal metabolism rate may exist in patients free from clinical evidence of myxoedema, yet made subjectively better by raising the rate to normal with thyroid feeding.

Multiple stage measures are life-saving procedures in severe hyperthyroidism.

Thyro-cardiac cases first seen in decompensation may be restored to striking cardiac capacity if it is possible by thyroidectomy to remove the intoxication and to restore the heart rate to within normal limits.

The most dreaded, uncertain and uncontrollable factor in our clinic today is mediastinitis.

The moderate values of x-ray treatment are more than outweighed by its disadvantages.

Thyroid surgery done in a general surgical clinic equipped for the care and study of these cases will show few failures to cure and a mortality rate rarely over and in most cases under one per cent.

REFERENCES

- 1 F. H. Lahey: A Review of a Year's Thyroid Work. *Boston M. & S. J.*, 1922, 186, 563.
- 2 S. M. Jordan and F. H. Lahey: A Study of the Basal Metabolic Rate in 1000 Patients. (Now ready for publication.)
- 3 B. E. Hamilton: Thyroidism Complicated by Heart Failure. Report of a Group of Cases. *J. A. M. A.*, 80, 24, 1771.
- 4 F. H. Lahey: A Technique of Thyroidectomy. *Surgery, Gynecology and Obstetrics*, 36, 1923, 825.
- 5 J. H. Means and G. W. Holmes: Further Observations on the Roentgen-Ray Treatment of Toxic Goiter. *Arch. of Int. Med.*, 31, 1923, 303.

SPONTANEOUS RUPTURE OF THE UTERUS, WITH REPORT OF A CASE

BY R. S. TITUS, M.D., BOSTON

SPONTANEOUS rupture of the uterus is spoken of by writers of text-books on obstetrics and by those who from time to time have recorded such cases, as one of the most fearful accidents of pregnancy. Although it is an extremely infrequent occurrence, it is seen often enough to be constantly borne in mind by those attending women at childbirth.

When one finds in a cursory review of the literature for the past few years, upwards of 100 such cases, one appreciates that to the individual writer it is unusual enough to record, and one also appreciates that if as many can be found so reported, it is probably more common than generally supposed.

For the sake of clearness it has seemed wise to divide spontaneous rupture of the uterus into those occurring during pregnancy and those occurring during labor. Spontaneous rupture of the uterus during pregnancy is, of course, much less frequently seen than that occurring during labor. However, in 1903 Baisch¹ collected 79 such cases from the literature, and in 1923 Kane² reported 26 additional cases, including one of his own.

The great majority of uteri that rupture spontaneously during pregnancy rupture because of gross anatomical uterine abnormalities. Interstitial pregnancies, ruptures of Cesarean section scars, bicornuate uteri are by far the most frequent causes. In those showing no gross anatomical lesion the rupture has been attributed to hyaline degeneration of the uterine muscle, invasion of the uterine muscle by fetal elements, and by extensive round-cell infiltration, which predispose friability. The majority of these cases occur in multiparae, a few in primiparae. The element of trauma and infection incident upon previous pregnancies, following curettage and the removal of the adherent placenta, are put down as causes of hyaline degeneration in these multiparous uteri. In primiparae the rupture is usually associated with the infantile uterus, whose walls by the dilatation of pregnancy get thinner and thinner, and rupture because they can distend no further.

Spontaneous rupture of the uterus during pregnancy may occur at any part of the upper segment of the uterus. Ruptures are found on the anterior wall, the posterior wall, at the fundus, but never in the lower segment. The patient presents the picture of an acute abdomen. A perfectly well woman during her pregnancy may be seized without warning by a sudden acute pain in the lower abdomen. The abdomen is spastic and tender, so tender that attempts to carefully make out the uterus may be entirely unsuccessful. She may be the picture of

hemorrhage and she may not. The picture of hemorrhage may be the salient point. In other cases the loss of blood is so slight that it does not attract attention, and, in fact, it is not known that the uterus has ruptured until some time later, when the abdomen is opened and the true cause found. There may be a rise in temperature. Shifting dullness is usually not made out. The most accurate diagnosis that can usually be made is that of a surgical belly. The picture of an appendix abscess, a strangulated fibroid, or a strangulated ovarian cyst may almost entirely correspond to that of ruptured uterus. The most important point is to appreciate that the surgical belly exists, so that laparotomy may be done. When the abdomen is opened there usually is found a good deal of blood in the peritoneal cavity; the rupture may have been such as to evacuate the uterine contents. In other cases, where the rupture has been slight, the amount of blood may be little, and the baby and placenta may still be *in utero*. Even though the rent be not extensive, conservative surgery means removal of the uterus. Some cases have been treated by merely suturing the hole, but inasmuch as there have been cases reported of repeated ruptures, and inasmuch as the pathology shows the uterine wall to be abnormal, such treatment is rational only when the patient's condition is such that more extensive surgery is contraindicated.

Kane's² case was one at six months, who had a severe pain in the abdomen while motoring. Exact diagnosis was not made. Laparotomy was performed because it looked like a surgical belly. The rupture of the uterus was seen and supravaginal hysterectomy done. The patient had had a previous curettage with a febrile convalescence. The specimen pathologically showed a chronic metritis. Kane's² case died the day following operation, the probable cause of death being embolus. I think that cases of spontaneous rupture during pregnancy upon whom operation is the only course, but who are in rather poor physical condition from shock and hemorrhage, should certainly be transfused either before or at the time of the operation.

Spontaneous Rupture of the Uterus During Labor.—This, of course, is a much more common condition, but it is rather difficult to get accurate statistics because most papers group spontaneous and traumatic under the general head of uterine rupture. Lobenstein,³ in reviewing the cases at the New York Lying-In in 1909, reported 46 complete ruptures in 60,000 cases, and of the 46, 28 were put down as spontaneous. In looking over the histories it seems that the element of trauma entered into a few of the cases which he classified as spontaneous. However, taking his cases as he classified them, this would give a percentage of occurrence of one in some over 2000 cases of labor. Ossendorff,⁴ writing in 1912, reports on a series of 12,197

cases, 19 cases of ruptured uteri, 10 of which were spontaneous, which would give a proportion of one in 1200. Scott¹ in 1917 reported two spontaneous cases in 3973. Other statistics have been difficult to differentiate. Long,² writing in 1914, states that rupture of the uterus of all varieties, according to various writers, occurred: one in 937 labors, one in 957 labors, and again one in 800 labors.

At any rate, it is evident that it is not a very common accident. It is much more commonly seen in multiparae than in primiparae. One writer states that it occurs seven and one-half times as often in multiparae, another says 15 times, and still another says 40 times. In Bandl's³ series it was nine times as often. In Trask's series, reported in 1856, it was about six multiparae to one primiparae. The reasons given because of the greater frequency in multiparae than in primiparae are that the general health of the multipara is nowhere near as good as the primipara, and, secondly, that the muscular wall of the multiparous uterus has been subject to trauma and infection from instrumentation, manual removal of the placenta, and other intra-uterine interference. This, of course, does not hold true so frequently in primiparae as in multiparae.

In considering the occurrence of the condition based upon a comparison of various figures, one must remember that statistics so reported deal almost entirely with the hospital woman, and she of course is, generally speaking, in poorer general health than the average private case.

Etiology.—Contraction ring and rupture of the uterus are so closely associated that almost all cases of rupture are attributable to this condition. Ruptures due to previous Cesarean scars, to medication of ergot and pituitrin, and to the few cases that show a definite uterine pathology, are not necessarily associated with contraction ring. In normal labor the lower segment of the uterus physiologically is taken up and thinned out until it is nothing but a continuation of the birth canal. As the lower segment thins out, so does the fundus or contracting part of the uterus increase in thickness during normal labor. In this process physiologically fibers accumulate at the junction of the upper and lower segments in the formation of Bandl's³ ring. The cervix is held in the pelvis posteriorly by the sacral-uterine ligaments, on the sides by the bases of the broad ligaments, anteriorly by connective tissue running to the base of the bladder. The fundus is held down by the guy-rope-like actions of the round ligaments. These supports of the cervix hold it down, else in abnormal labor, with contraction ring formation, it might be pulled too far up into the abdomen. The round ligaments hold the fundus down, else in contraction ring formation with retraction, the fundus might rise too high.

Any cause for interfering with the progress of normal labor is potentially the cause for a beginning contraction ring. In other words, any cause of dystocia, inasmuch as it predisposes to a contraction ring formation, predisposes to rupture of the uterus. It was thought for a long while that contraction rings could not be found except in a dry uterus. This has been proved over and over again to be a fallacy, and while it is also considered that long labors are more frequently the cause of contraction rings, they may appear in short labors. The uterus in which a contraction ring develops presents a lower segment as thin as tissue paper. Bandl's³ ring has become accentuated and rises higher in the abdomen, and oftentimes may not only be felt but seen. Many writers state that where a contraction ring exists, the impinging of the cervix between the symphysis and the presenting part predisposes to a tearing of this lower segment, because it is stretched so much and the fundus has retracted so much, that it can stand no further pressure.

Text-books give varied causes for rupture of the uterus, but they all fall under the three heads: (1) abnormalities of the uterus, (2) abnormalities of the baby, and (3) abnormalities of the pelvis. Cesarean section scars occupy a very prominent place. Rongy states that 3 per cent. of Cesareans rupture at subsequent pregnancies, and that 50 per cent. of these die. In 1846, it is interesting to note that a German writer stated that 50 per cent. of Cesareans ruptured during a subsequent pregnancy, or in labor. Such a proportion as that nowadays is out of the question. It certainly seems as though 3 per cent. is a much too high percentage of Cesarean section ruptures, but undoubtedly a good number do. Literature is full of such accidents, and no one who has done much obstetrics can fail to have seen at repeated sections a scar so thinned out that the uterine muscle is herniated and that peritoneum and membranes alone separate uterine and abdominal contents. Such cases surely would not stand labor, they must rupture. There is no gainsaying the fact that once a Cesarean has been performed that patient stands a definite risk of rupture, no matter who the operator or how carefully the operation is performed. Furthermore, there is no way of telling which is more likely than another to rupture. A smooth afebrile convalescence does not guarantee a well-healed scar that will not tear, nor does a stormy convalescence definitely suggest more likelihood of weakness. Appreciating this subsequent risk, as well as the immediate risk, of peritoneal infection of any Cesarean, clean case as well as possibly infected case, should always make the operation undertaken only after due deliberation. The number of Cesareans done is far too great. The indication too frequently would not bear careful scrutiny. The great majority of Cesarean sec-

tions should occupy only one place in obstetrical surgery, and that is analogous to abdominal surgery, where the operation is done for the sake of the mother. Fetal and pelvic disproportion is nowhere near as common an indication as ten years ago. There are actually very few absolute indications of this sort. The test of labor has been a great advance in this direction, and has reduced the operation for this indication remarkably. Ergot injudiciously used was a frequent cause of uterine rupture years ago. Fortunately, with better understanding, the drug is used nowadays during labor not at all. Pituitrin, however, more than makes up for the disuse of ergot. The number of cases rupturing after its use recorded in the recent literature is astounding. While minim doses before full dilatation probably are not harmful, greater doses are extremely dangerous. It is far safer to defer its use until full dilatation exists and then to use it only when there is no question of pelvic and fetal disproportion, or when there is no question of the existence of a beginning contraction ring. Fixation operations, no longer done on child-bearing women, by preventing the normal rise of the anterior wall, with subsequent abnormal stretching of the posterior wall, have been cited as causative agents in rupture of the uterus, and in the same way the posterior wall gets unduly stretched in pronounced pendulous abdomens when labor starts before the presenting part is engaged. Tumors, duplex or unicorn uteri, abnormal rotations of the fundus, congenital or acquired cervical stenosis, and very rarely degenerative or hypoplastic uterine muscles are other causes inherent upon the uterus suggested. Placenta previa is mentioned in almost every series that one sees. It was once mentioned in the series of Ossendorff,* in which the rupture was spontaneous. Scott's² two cases of spontaneous rupture microscopically showed red-cell infiltration of the uterine wall at the site of the rupture. This pathology is quite like that which Williams³ gives for the placenta ablatio, but I do not find any such pathology referred to by other writers.

Fetal Causes.—Abnormal positions, such as transverse or shoulder, favor contraction ring formation, and just so far favor rupture. Monstrosities and hydrocephalic babies are rather frequently mentioned in the literature. Lobenstein³ had one hydrocephalus. Other writers report this association four times in 124 cases, five in 108, 16 in 74, and 18 in 160.

Pelvic Causes.—The common pelvic causes of dystocia are contracted pelves of any type, bony sacral tumors, osteomalacia and tumors arising anywhere from the soft parts within the pelvic girdle, and as these predispose to ring so they predispose to rupture. Davis⁴ reports 40 per cent. of his series showed contracted pelvis. Merz^{1a} reported 22 per cent. Ossendorff⁵ feels that contraction of moderate degrees, rather

than very unusually contracted pelves, are the sorts that lead to this condition.

Types of Rupture.—Complete ruptures involve muscular coats and peritoneum. Incomplete ruptures involve muscular coats, but not the peritoneum. The number of complete ruptures reported by almost all authors exceeds those of incomplete. This means little or nothing, as many incomplete ones are not serious enough to cause any trouble, and, furthermore, most writers believe that all complete ones began as incomplete. Schmauch¹¹ believes that the tears all begin on the peritoneal surface and extend into the muscle. This, of course, cannot hold true of cervical tears that extend into and through the broad ligaments. All uterine tears associated with contraction ring start in the lower segment. They may be horizontal or transverse, oblique or V-shaped, extending into the broad ligaments. Some are mesial. They may extend into the fundus or through the cervix. They may go anterior and involve the bladder, or downwards and posterior, through the posterior fornix into the vagina. Those involving the bladder are very serious. Vaginal ruptures may allow the prolapse of the intestines. Cervical ruptures may extend into the vault and dissect away the layers of the broad ligaments by hemorrhage so extensive that death may come right away or be delayed until the hemorrhage eats its way into the peritoneal cavity or becomes septic.

Symptomatology.—Cases of spontaneous rupture of the uterus, not associated with contraction ring formation, present no premonitory signs. Suddenly, either before or during labor the patient complains of a sudden tearing sensation in the abdomen and to a greater or lesser degree, depending upon the amount of rupture, she shows signs of shock and hemorrhage. The pulse may be rapid, blood pressure low, mucous membrane pale, skin covered with perspiration, and the abdomen very tender. If the rent has been extensive enough, the contents of the uterus may be in the abdomen, in which case the baby is more readily palpated than when *in utero*, and the fundus is felt as a hard mass in one or the other of the lower quadrants. Even though we do think that Rongy's 3 per cent. ruptures following Cesareans is too great, we must always bear in mind the inherent possibility. The handling of subsequent Cesareans is much commented upon. Some writers state their belief to be that the patient should be under hospital surveillance during the entire last month, and most men believe that because of the possibility of rupture repeated Cesareans should always be done on a stipulated date or at the very onset of labor. If one is radical enough to allow these patients to go into labor, he should acquaint his patient with the real possibility of rupture, and put that risk right up to the husband and wife, and then if it be

their desire to assume this risk, he should be with her right from the start of labor all the time, having things ready to perform an abdominal operation at the first sign of rupture. Mothers should not be lost in this way, but some babies of necessity must be. In the ordinary cases of uterine rupture, associated with contraction ring, one must not disregard the fact that long labors or long, dry labors are not an essential to its formation. Any case of labor may develop a ring with or without ruptured membranes. The course of any labor must be carefully watched. If contractions become irregular in time and force, if constant pain develops in the lower abdomen, if normal uterine relaxation between contractions is absent, if the uterus is tender between contractions, the signs of beginning contraction ring should be appreciated and delivery accomplished in the most conservative manner. It is by this careful watching of the patients, by the prevention of the contraction ring itself, that the rupture of the uterus can best be treated.

In any case which has shown premonitory signs of contraction ring—which has been neglected—the rupture may occur very suddenly. Labor ceases. The patient is the picture of profound shock and hemorrhage and the pulse is elevated, the mucous membranes are pale, the skin is covered with perspiration, and the blood pressure is low. There is little external bleeding, but the picture of this sudden collapse, associated with the sudden pain, is almost pathognomonic of rupture. The abdomen is tender. If the baby is in the peritoneal cavity, the fundus is hard and occupies one of the lower quadrants. The baby is palpated more readily than when in the uterine cavity. If the presenting part, which was once low, is now found not to be in the pelvis the diagnosis is made that much simpler.

Treatment.—The treatment of spontaneous rupture of the uterus, not associated with contraction ring formation, is laparotomy, as soon as the diagnosis has been made. The method of treatment of the rupture depends upon its site and extent. Ruptured Cesarean scars may be sutured. Extensive tears mean hysterectomy.

The treatment of spontaneous rupture of the uterus associated with contraction ring depends upon the findings in the individual case. If the baby be not delivered, and if the presenting part be low and cervix dilated, delivery from below without version, followed by laparotomy, is the accepted procedure. If the baby be not low, laparotomy is best, for any intra-uterine manipulation usually means more extensive trauma. If it can be decided that the baby is partly, if not wholly, in the abdominal cavity—and, if the presenting part has receded, this usually is simple—laparotomy is the only method of procedure, and this means hysterectomy. Some German authorities still adhere to

vaginal hysterectomy in selected cases. Several of Ossendorff's⁴ series were so treated with success.

Vaginal tears, if found at laparotomy, had best be treated with a gauze drain. In incomplete ruptures, packing has been done fairly successfully for a long time, but most authors now think that even in these, laparotomy is the more conservative operation, because it is only by seeing that one can be certain of their extent. Needless to say, transfusion plays a very important rôle in the treatment of these patients, and if the patient be in a condition of profound shock, the transfusion should be done before any operative procedure. It is interesting to note that in the series reported by Trask in 1856, 29 cases were treated by laparotomy with 22 recoveries, and that of 118 cases treated by packing only 38 recovered, which is a proportion of 32 per cent.

Prognosis.—For the baby it is extremely bad, although there are cases in the literature where the baby has been saved. Prognosis for the mother depends upon the extent of the rupture, upon her condition when operation is performed. Sepsis is a greater cause of death than hemorrhage. The best results come from the removal of the uterus. Ten of Ossendorff's⁴ 19 cases recovered, in all of whom the uterus was removed.

REPORT OF A CASE

The following is the history of a case of ruptured uterus seen in consultation June 15, 1922. The patient was a multipara, 35 years old, in her fifth pregnancy at term. Her previous pregnancies and labors had been normal. She had had no previous operative history. The patient had entered the hospital during the previous night in good labor.

Vaginal examination about 11 a. m. showed the cervix to be nearly dilatable, the membranes were ruptured artificially by the attending physician and shortly after noon pains became irregular. About 2 p. m. as the patient rose from bed to walk to a chair she collapsed, complaining of a tremendous pain in the abdomen.

Patient seen at 3:45 p. m. in profound collapse, rapid thready pulse, restless, pale and perspiring. Palpation of the abdomen showed a hard mass in the left lower quadrant apparently continuous with a softer one on the right, rising almost to the ribs with a definite sulcus between these two masses in the median line below the umbilicus. No foetal heart obtained. Small amount of old blood from the vagina.

Diagnosis: (1) Ruptured Uterus. (2) Twisted Ovarian Cyst. Salt solution and morphia given. Operation delay until transfusion. Citrated blood transfusion done at the time of operation. Operation performed by Dr. Hubbard. Low median incision, free fluid blood escaped from the abdominal cavity. Baby and placenta found in the abdominal cavity. Hard mass on the left proved to be uterus, firmly contracted, which had ruptured posteriorly from top of fundus to lower segment, rent extending through posterior cul-de-sac into vagina. The uterus was so contracted that it was turned almost inside out. Bladder was uninjured. Ovarian and uterine vessels tied and cut. The fundus was excised above the cervix. Gauze

drain placed through posterior cul-de-sac into vagina. Recovery. Patient left the hospital on the 40th day.

REFERENCES

- 1 Balsch: Ueber Zerreissung der Gebärmutter in der Schwangerschaft. *Beiträge z. Geb. u. Gyn.*, 1903, vii, pp. 248-252.
- 2 Kane: *Am. Jour. of Obstet. and Gyn.*, Vol. 5, pp. 155-163. February, 1925.
- 3 Lobenstein: *Am. Jour. of Obstet.*, 1909, Vol. 60, p. 819.
- 4 Osseendorff: Ueber Uterusrupturn und ihre Behandlung. München, 1912.
- 5 Scott: *Am. Jour. of Obstet. and Gyn.*, 1917, Vol. 76, p. 423.
- 6 Long: *Am. Jour. of Obstet. in New York*, 1914, Vol. 70, pp. 20-32.
- 7 Bandt: Ueber Ruptur des Uterus und ihre Mechanik. Wien, 1875.
- 8 Williams: *Obstetrics*.
- 9 Davis: *Surg., Gyn. and Obstet.* Chicago, 1913, Vol. 17, pp. 51-58.
- 10 Meitz: Zur Behandlung der Uterusrupturn. *Archiv f. Gyn.*, 1894, Vol. xiv, pp. 181-271.
- 11 Schmauch: *Surg., Gyn. and Obstet.*, 1905, Vol. 1, p. 260.

PUERPERAL ANAEMIA*

BY H. QUIMBY GALLUPE, M.D., WALTHAM, MASS.,
AND
DWIGHT O'HARA, M.D., WALTHAM, MASS.

THE modern study of blood pictures, and the tendency to divide anaemias into primary and secondary varieties, has been a great aid to the clinician in forming his conception of many morbid conditions. The hematologist, however, has not been so easily satisfied, and has gone forward into fields where the general practitioner finds following difficult. Pernicious anaemia, simple chronic anaemia, aplastic anaemia, and secondary anaemia all merge into each other, but with large borderlands. Study of the hemolysins of the serum, the fragility of the cells, the degree of reticulocytosis, etc., will help to put many of the doubtful cases in their proper groups, but there still remains a number of borderland cases which cannot yet be classified.

The purpose of this paper is to call attention to a group of anaemias which, although not common, are nevertheless comparatively easy of recognition. With the exception of two cases we have nothing new to report, but we hope to call the attention of the obstetrician and the profession in general to a syndrome that apparently has not received the attention it deserves. We are furthered in this hope by the fact that there is at hand a practical treatment which is efficacious.

Puerperal anaemia is referred to by the standard text-books on obstetrics in a very vague way, if at all. The occurrence of pernicious anaemia during child-bearing is spoken of in a manner that suggests that there is some cause and effect relationship between the two conditions, but we can find nothing in the literature to suggest that the relation between these two conditions is anything more than one of coincidence. The conditions are, no doubt, confused by the tendency to designate any profoundly

anaemic condition for which there is no obvious cause, as "pernicious." But pernicious anaemia is a disease which is characterized not only by profound changes in the blood, but by a tendency to alternately relapse and remiss, and by other definite symptoms referable to the gastrointestinal and nervous systems. In an excellent article on the subject, Schmidt¹ says: "... We should hold steadily to this conception of the disease, and should separate it from those forms of secondary anaemia which produce a somewhat similar blood picture. Puerperal anaemia should certainly not be confused with primary pernicious anaemia, and I believe there is little excuse for confusing the blood pictures of these two conditions." In analyzing 1200 cases of pernicious anaemia, Cabot² found that 60 per cent. of them occurred in males. Of the 434 cases in females, there were 35 in which the disease began during pregnancy or shortly after parturition. That is, the onset of pernicious anaemia in all females was associated with confinement once in every 16 cases. Considering the prevalence of the gravid state, we do not believe that this is remarkable; much less so when one also considers the tendency of the laity to ascribe their troubles to well-remembered events. If pernicious anaemia is a definite syndrome, which like any other syndrome found in women will concur with gestation and its sequelae in a certain number of cases, what, then, is puerperal anaemia?

Puerperal anaemia has been reported at intervals ever since anaemias have been described at all, in both the English and foreign languages. Both because it is a first-rate description and because of its historical interest to those of us about Boston, it is worth while to quote from a paper on the subject by Walter Channing,³ himself an obstetrician. This paper appeared in 1842, which is several years prior to the time when Addison first taught the existence of certain idiopathic anaemias. Channing called the disease anhaemia, and added in a footnote that "the specific name for this disease is sometimes written anaemia, but incorrectly." The case of Mrs. H., which occurred in 1832, he summed up as follows: "On a review of this case, the most obvious cause which can be assigned to its phenomena is great loss of blood during or after labor. A person, ordinarily in good health, having no perceptible disease except a moderate bronchitis, suddenly becomes pale, the surface of the body being waxy and bloodless; she is faint and fatigued; capable of great bodily efforts which, however, produce palpitations and distress; she has pain in the head, impatience of light, throbbing at the temples, and sometimes an universal throbbing, slight confusion in the mind, and a sense of total and extreme prostration. At the same time the pulse is frequent, large, strong and hard; at least, an observer who should not see the pallid face and miserable

*Read before the Obstetrical Society of Boston, Nov. 27, 1923.

look of the patient, would pronounce it to be hard; percussion and auscultation do not give signs of any disease in the organs within the thorax. . . . Still every surface which can be examined during life, is destitute of blood. And after death, the only remarkable appearance is the bloodlessness of the tissues; for the inflammation of the mucous membranes of the bronchi of the left lung, which is the only morbid condition that is not produced by the course of the disease or the approach of death, is quite inadequate to the explanation of the symptoms. These symptoms and the post-mortem appearances might easily, it would at first seem, be explained by the supposition of great loss of blood during labor. And in the first days of the disease it was almost impossible to reject this supposition. But when the patient was seen to live for eighteen days without flowing, and to be steadily declining all this time, although stimuli in large quantities were supported well, and food of the most nourishing sort was perfectly digested in the first passages, we became convinced that there was some less obvious and less appreciable cause of the phenomena. The testimony that she did not flow a very great deal was as strong as the case could admit; besides the midwife, who is quite capable of estimating the truth in such a case, and the worthy nurse who would be very ready to tell it, the patient herself, a trusty maid servant who removed and assisted in washing the clothes, and a judicious aunt whose situation enabled her to know the details of the labor, all agree in the statement that a very great quantity of blood was not lost, not more indeed than they had repeatedly seen, though, as is well known, the fears of attendants are very easily alarmed by the sight of blood."

One may be sure from the latter part of this quotation, that Channing satisfactorily ruled out postpartum hemorrhage in coming to what then must have been an extraordinary diagnosis. And in the same convincing manner he also ruled out "peritonitis puerperarum, or puerperal fever," "the organic diseases" and even chlorosis and other "anaemias."

Channing's descriptions have been confirmed at intervals ever since, so that we need now have no hesitation in speaking of puerperal anaemia as a clinical entity. For its diagnosis one must have a healthy woman with a normal pregnancy and delivery. Unfortunately this usually means that no examination of the blood has been made prior to the development of the disease. The onset is a few days after delivery. The presenting sign is pallor, although it may be preceded by a rise in the temperature and the pulse rate. A thorough examination reveals no signs of sepsis, although it is usually suspected and must be ruled out. *The physician sees nothing except anaemia, and on examining the blood he finds its condition compatible with the patient's appearance.* With the development of the anaemia,

which may be quite rapid, there is an increase in the pallor, weakness on the least exertion, vomiting, and all the asthenic signs of markedly anaemic states. The temperature remains above normal in an irregular way, and may run as high as 104°. The blood findings in our two cases follow. We believe that the so-called "typical blood pictures" in general are often a delusion to the clinician, who is confronted, not with a large series of cases, but with a few individual problems, and we do not believe that one is justified in fabricating a blood picture from a few cases. The anaemia is evident enough, and the above history, in the absence of preëxistent disease, hemorrhage or sepsis, makes the diagnosis. The question of sepsis will be more fully discussed in a moment.

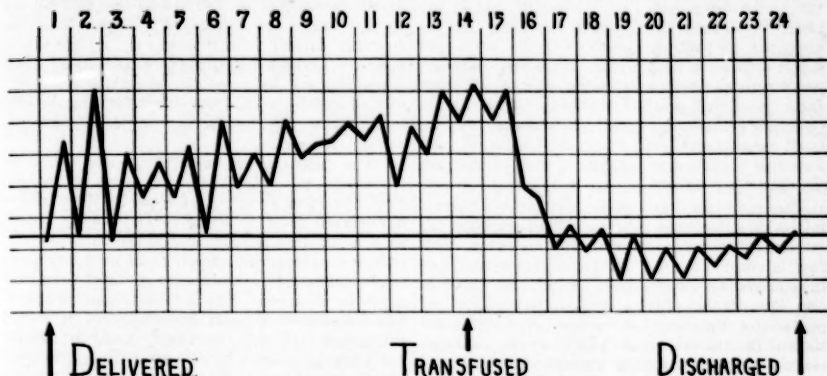
The prognosis, as gathered from the literature, is variable. Channing's ten cases were all fatal, and some of the later writers have reported almost equal misfortune. Osler says: "With few exceptions the text-books on Obstetrics have very little to say, and the gloomy prognosis is an echo of the unfortunate experiences of the older writers." There is no doubt that some of the cases in the literature are examples of puerperal sepsis due to hemolytic organisms, and are therefore not true examples of the idiopathic condition. Whether or not the older generations were more unfortunate in their experiences with this malady, the conclusion cannot be escaped that the condition is a very grave one, and it behooves the physician to watch his case with extreme care.

CASE 1. Mrs. W., nineteen years old, primipara, with negative history, was watched through pregnancy and delivered normally by Dr. C. O. Chase of Watertown, to whom we are indebted for the privilege of observing the case. The accompanying chart shows the temperature during the stay in the hospital. Examinations by Dr. Chase and Dr. R. L. DeNormandie revealed nothing to account for the condition except a very evident pallor. We examined the blood about ten days after delivery. The red count was 1,792,000; white count 4,300; hemoglobin 35 per cent. The smear showed 60 per cent. neutrophils, 1 per cent. eosinophils, and the remaining cells of the mononuclear type, mostly small lymphocytes. The number of platelets was diminished. The red cells showed marked changes in size and shape, but the tendency was to microcytosis rather than to macrocytosis. There was slight achromia. Three stippled cells, two normoblasts, and eighteen polychromatic cells were seen. The liver and spleen could not be felt. There was no pigmentation of the skin, but there was a definite yellow tinge, such as is frequently seen in the skin of pernicious anaemia. At the time marked on the chart the patient was transfused with 500 c.c. of whole blood from a suitable donor. Improvement at once took place. The temperature came to normal and stayed there. A few days later the red count was 1,952,000; white count 4,450; hemoglobin 48 per cent. The red cells in the smears looked more normal, many of them probably being transfused cells. Ten days after transfusion the red count had risen to 2,396,000, and the hemoglobin to 60 per cent. The white count was then 8,000, and the percentage of lymphocytes somewhat increased. In counting 200 white cells at this examination, 8 normoblasts were seen, and there appeared to be a larger number

of macrocytes. The general morphology of the red cells approached normal. The patient left the hospital in apparent health, and has now remained well for twenty-two months. The Wassermann reaction was negative.

count was never above 8,000 except on one occasion before transfusion, when it was 14,300. The red count rose from 2,000,000 before transfusion to 3,388,000 four weeks after. Except for a very mild attack of arthritis, she has now remained well and

CASE 1, TEMPERATURE CHART



CASE 2. Mrs. C., 29 years old, ten years previously had had an attack of rheumatic fever. She had had three children normally, but after the birth of each had been anaemic for some time, although she had never had any unusual postpartum hemorrhage. The degree of this anaemia increased with the birth of each successive child, and on the last preceding occasion had confined her for several weeks. A gradual recovery took place each time, however, and she always entered the next pregnancy with no sign of pallor, although she never was a woman of ruddy appearance. She was delivered normally of her fourth child by one of us, for Dr. S. P. Strickland, to whom we are indebted for the history and for the opportunity of making subsequent observations. She had very little postpartum bleeding and appeared to start her puerperium normally, but she very soon began to run a temperature and develop pallor, however. She had the murmur of mitral stenosis, which was decided to be inactive at the time by general consent of her medical attendants. For six weeks the pallor increased, and although a transfusion was urged it was not consented to until there developed faintness, vomiting and diarrhoea. There was no evidence of occult bleeding. The temperature was frequently recorded at 104° , and higher. Finally, with a hemoglobin of 30 per cent., she was transfused with 500 c.c. of whole blood from a suitable donor. Her temperature came to normal and remained so as in the previous case, although the readings were not taken with the regularity of hospital care. Four weeks afterward the hemoglobin had reached 60 per cent., and the patient felt in perfect health. Her blood smears before transfusion showed marked changes in the size and shape of the red cells, marked achromia, and marked decreases in the number of platelets, which when seen were very large. But one normoblast was seen in the examination of fifteen or more smears, there being no further evidence of blood formation. The bleeding time was slightly increased before transfusion, but has been normal since. The skin of this patient had none of the yellow tinge of hemolytic anaemia, but was of a delicate pearly white appearance, and after transfusion was flushed with pink. The white

active for more than ten months. She has been advised against becoming pregnant again. Her Wassermann reaction was negative.

It is regrettable that more work has not been done on the blood of these cases. In Case 1, increased blood destruction, with a secondary acceleration of blood formation, would seem to have played a considerable part. The subicteric tinge of the skin, and the nucleated red cells, suggest that, during recovery at least, the formation of blood was speeded up to compensate for an abnormal amount of red-cell destruction, just as when a remission occurs in a case of pernicious anaemia. In Case 2, on the other hand, the pearly whiteness of the skin, the diminished number of platelets, the increased bleeding time and the lack of signs of blood regeneration in any of the smears, suggest that there was an hypoplasia of the bone marrow. These facts also help in coming to the conclusion that an active endocardial lesion was not a factor, for if it were it would be expected that its influence would be of an hemolytic character. But perhaps, if the truth were known, the cause of the anaemias due to increased destruction and that of the anaemias of decreased formation may be very similar. The difference cannot be more than that of an environment which is inimical to cell survival on the one hand, or to cell proliferation on the other. The temperature is best explained as being due to the same cause as the anaemia itself, but sepsis must be thoroughly ruled out whenever a parturient woman has fever. We are so convinced of the absence of any ordinary form of

puerperal sepsis in these two cases, that we wish to state our reasons for this opinion. 1—The white counts were low, averaging below 6,000 for the estimations made before transfusion. 2—There were no signs of localized infection to be found on thorough physical examination. 3—There were no nervous or mental manifestations of toxemia at any time. 4—Transfusion would certainly not be expected to produce a crisis in the course of septic processes in general, much less in puerperal sepsis. Although in the face of all these facts, it is still possible that our patients were suffering from puerperal septicæmia, it also must be admitted that the combination of such findings would be so fortuitous as to make sepsis extremely unlikely.

The important point about puerperal anaemia is that the cause is one which operates either late in pregnancy or early after delivery. This fact is emphasized by the history of recurrence in succeeding pregnancies shown in Case 2, and Minot⁵ also cites a similar observation reported by Potano. Carrel and Ebeling⁶ have shown in animals that adult serum contains certain growth-inhibiting substances which embryonic serum does not. Conceivably the maternal and placental bloods may therefore be very different in some of their fundamental biological properties, and the mechanism which maintains a normal balance in the maternal blood may thus be greatly altered at the time when it suddenly ceases to be influenced by its indirect contact with the placental contents. Such changes are as conceivable biologically as are the anatomical changes known to take place in the circulation of the newborn, and the rare cases of malignant ieterus neonatorum, for which no cause can be ascribed, might be cited as examples of failure on the part of the infant's hemopoietic mechanism to compensate for this same break from the accustomed maternal influences. Rucker⁷ has concluded after repeated estimations in seventy-four cases, that after normal delivery there is a definite drop in the hemoglobin, from which the patient slowly recovers. While this might well be due to the normal loss of blood after delivery, it might also be due to the mechanism now suggested, the failure of which produces puerperal anaemia. This, of course, is mere speculation, but if, as one of the ancients has said, "you must have an hypothesis," it measures up as well as some others.

Transfusion in anaemias of all sorts seems to be the order of the day, whether or not a permanent recovery or prolonged remission is anticipated. In many conditions the degree in which transfusion is indicated is largely determined by the philosophy of the particular patient or his friends. Such is often the case in pernicious anaemia and purpura hemorrhagica. But when there is likelihood of com-

plete recovery, and transfusion may be expected to tide over until that recovery establishes itself, the obstetrician has a great opportunity. As to what will happen to these puerperal anaemias if not transfused, we have but to refer to the mortality rates which have been reported. The majority of them will die. Dr. H. B. Schmidt (*loc. cit.*), who has had an unusually large experience with these cases, has strongly urged transfusion as a life-saving measure, and we heartily agree with him. Even Channing saw its possibilities eighty years ago, but as can be seen from the following he was handicapped by not living in these technical days. He said:

"The question of transfusion has often occurred to me. But of what possible benefit would be such a supply of blood? What might not the effect be of filling almost empty vessels with a fluid so unlike that which already circulates in them, and which their own functions have produced? In a disease so fatal some risk might be incurred. But is transfusion an operation which our present knowledge of it would authorize? If safe in itself, however, might not time be gained by the operation, for such functional changes to occur as would supply healthful blood?"

Most of these questions can now be satisfactorily answered.

SUMMARY

1. Pernicious anaemia is the name of a definite disease syndrome, and should not be used as a descriptive name for any profoundly anaemic condition.
2. Puerperal anaemia is an entity in itself, and should not be called pernicious anaemia associated with pregnancy.
3. Two cases of puerperal anaemia are here-with reported.
4. A theoretical consideration of the etiology of puerperal anaemia is given.
5. Transfusion is recommended as an efficacious treatment.

REFERENCES

- 1 Schmidt, H. B.: A Clinical Study of Puerperal Anaemia, *Gynec. & Obst.*, 27, 596, Dec., 1918.
- 2 Cabot, R.: *Oster's Modern Medicine*, 1908, Vol. IV, p. 614, Lea & Febiger, Philadelphia.
- 3 Channing, W.: Notes on Anaemia, Principally in its Connections with the Puerperal State, and with Functional Diseases of the Uterus; with Cases. *N. E. Quart. Jour. of Med. & Surg.*, 1842, p. 157. (B. M. L. 1-Ha-67.)
- 4 Osler, W.: Observations on the Severe Anaemias of Pregnancy and the Postpartum State, *Brit. Med. Jour.*, Vol. I, p. 1, 1919.
- 5 Minot, G. R.: *Oxford Medicine*, Vol. II, Chap. xvi, p. 648.
- 6 Carrel, A., and Ebeling, A. H.: Age and Multiplication of Fibroblasts, *J. Exp. Med.*, Vol. xxix, p. 6, Dec., 1921.
- 7 Rucker, M. P.: A Study of the Hemoglobin after Childbirth with Special Reference to the Resumption of Menstruation, *Am. Jour. Obst. & Gynec.*, Vol. I, p. 964, 1920-1921.

NOTE: The name *Puerperal Anaemia* has been used by some to designate that form of anaemia due to sepsis, as well as the condition here described. The use of the name for such frankly septic cases adds to the confusion, but not to the literature. For this reason the term *Chronic Hemolytic Anaemia due to Pregnancy* has been suggested as a better name than *Puerperal Anaemia*.

Case Records of the Massachusetts General Hospital

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN
WEEKLY CLINICO-PATHOLOGICAL EXERCISES

EDITED BY

RICHARD C. CABOT, M.D., AND HUGH CABOT, M.D.

F. M. PAINTER, ASSISTANT EDITOR

CASE 10051

First entry. An American student of twenty-two entered August 19, fourteen months before his final admission.

F. H. Good.

P. H. He had measles and whooping cough before he was a year old. Since that time he had always been healthy and athletic. Best weight 156 pounds, a year ago. Usual weight 150 to 155 during the summer, about 140 in winter. This summer it had remained at about 140.

Occupational history. He was earning his way through college as a musician, playing an hour and a half every noon and four nights a week until one o'clock, afterwards studying often until three.

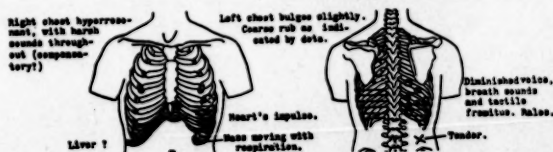


FIGURE 1.

P. I. Six months before admission he noticed a hard swelling on his left forearm. It gave him very little discomfort except that it sometimes interfered with rapid finger work. During the next two months it gradually increased to its present size. One spot was slightly tender to touch. Three months ago he developed a dry cough which had persisted, with a little white sputum occasionally in the morning, and dyspnea, worse when he lay down. A month ago for four days he had sharp cutting pain in the right lower back only on deep inspiration or motion of the trunk, and absent when he lay on his left side. A week ago he had gradual onset of severe dull aching pain in the right thigh, becoming so severe that he required several

doses of morphia in two days. After it subsided a slight pain remained on any motion which put strain on the quadriceps group. He went to a hospital, where 50 c.c. of bloody cloudy fluid was withdrawn from the left chest.

P. E. Poorly nourished. Acneiform eruption over face and upper torso. Lips slightly cyanotic. Posterior pharynx reddened. Tonsils enlarged, inflamed and cryptic. Left chest bulged slightly. Lung signs and apex impulse of heart as indicated in Figure 1. Heart action rapid. Sounds of poor quality. A₂ greater than P₂. Right pulse greater than left. B.P. 100/75-115/90. Abdomen. See Figure 1. Genitals normal. Extremities. A firm fusiform tender non-inflammatory swelling apparently involved the left ulna, starting with the subcutaneous tissues. Skin could be rolled over mass. Tendons and muscles had normal function. Arm at tumor area about one and a half times diameter of right arm. Another tumor mass appeared from palpation to lie over right femur, more diffuse than the one in the arm, tender, and could be rolled over femur. Pupils and reflexes normal.

T. 96.3°-104°; periods of elevation August 21-22, August 26-September 7, September 19-23; after September 24 no elevation. P. 80-170; greatest rise August 27-30. R. 17-55. Urine. Normal amount. Sp. gr. 1.015-1.028, cloudy at three of five examinations, alkaline at two, the slightest possible trace to a large trace of albumin at three, leucocytes at three, red blood corpuscles at one. Blood. Hgb. 80 per cent. Leuco-

cytes 13,000-23,200-9,200. Polynuclears 55 per cent. to 87 per cent. Eosinophils 6 per cent. at entrance. August 28: "Mononuclears atypical. Many granules of neutrophilic type. Nucleus slightly large and cell very regular in outline." Same date: "The atypical cells are somewhat larger than a polynuclear, with a large nucleus filling most of the cell, indented but not bean shaped. The cytoplasm contains many neutrophilic granules." Reds normal August 19 and 28; September 21 slight achromia, an occasional polychromatophilic cell; September 27 slight achromia, anisocytosis. Wassermann negative. Non-protein nitrogen 30.3 mgm. Creatinin 1.68 mgm. Sputum. No blood or tb. Streptococci. Occasional staphylococci and Gram-positive and

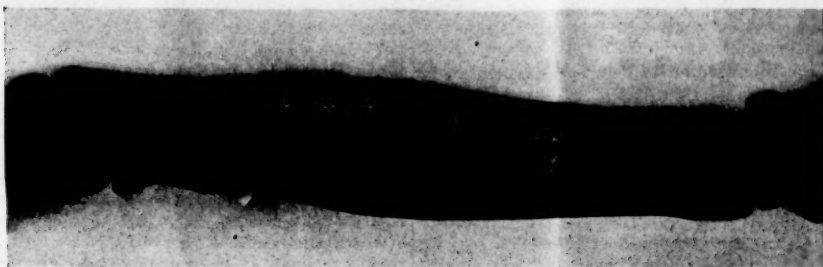


PLATE I.—Forearm August 21, first admission, before treatment. Shows fusiform thickening of the middle third of the ulna, apparently due to proliferative changes in the region of the periosteum. Small but distinct ray formations on the outer aspect of the ulna. Soft tissues in region of involved area considerably thickened. No definite tumor outline visible. Bones show no evidence of atrophy or destruction.

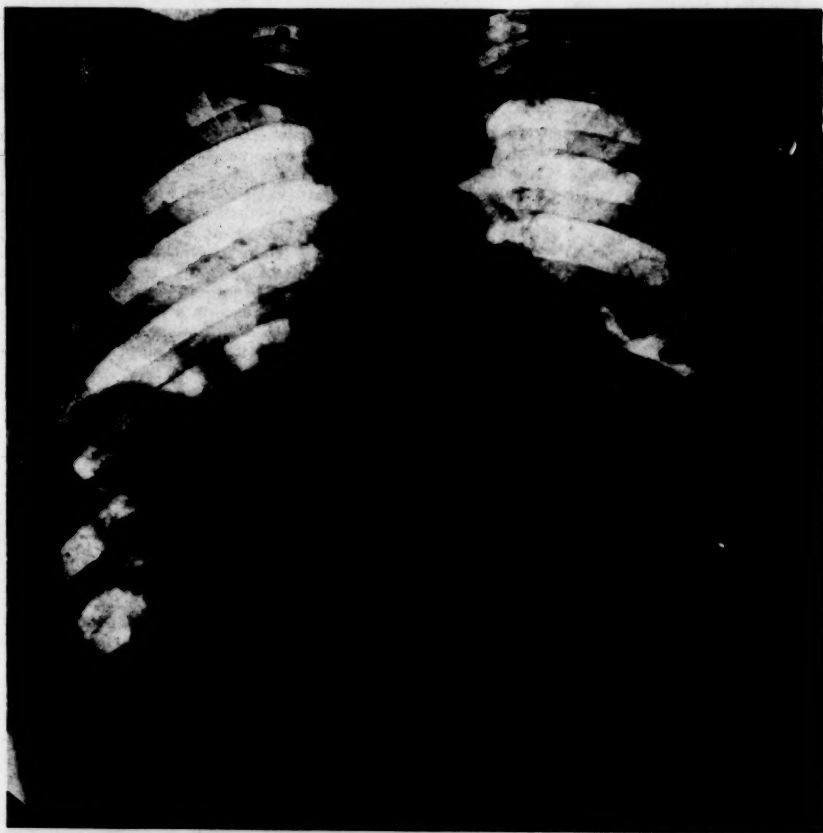


PLATE II.—Chest August 21, first admission, before treatment. Large dense sharply defined shadows obscuring outline of heart and angle between it and diaphragm on both sides. Similar small shadows well out in periphery of lung. No evidence of cavity formation. Apices clear.

Gram-negative bacilli. A small amount of pus. *Chest taps.* August 20. (1) Eighth interspace over very dull area near the posterior axillary line. No fluid obtained. Solid material encountered grating against needle and causing pain. (2) Eighth interspace in posterior axillary line. 10 c.c. of bloody fluid, clotted rapidly. Red blood cells 912,000, leucocytes 2,100, vacuolated mononuclears (pleural? tumor?) 5 per cent.,

September 13, single reading, only 1,110. The forced respiration caused such violent coughing that a second determination was not attempted.

The patient was given morphia, codeia, aspirin, adrenalin, atropin, and one order for KI September 25. August 27 he was given heavy radiation. This was followed by severe reaction and the maximum rise in temperature, pulse and

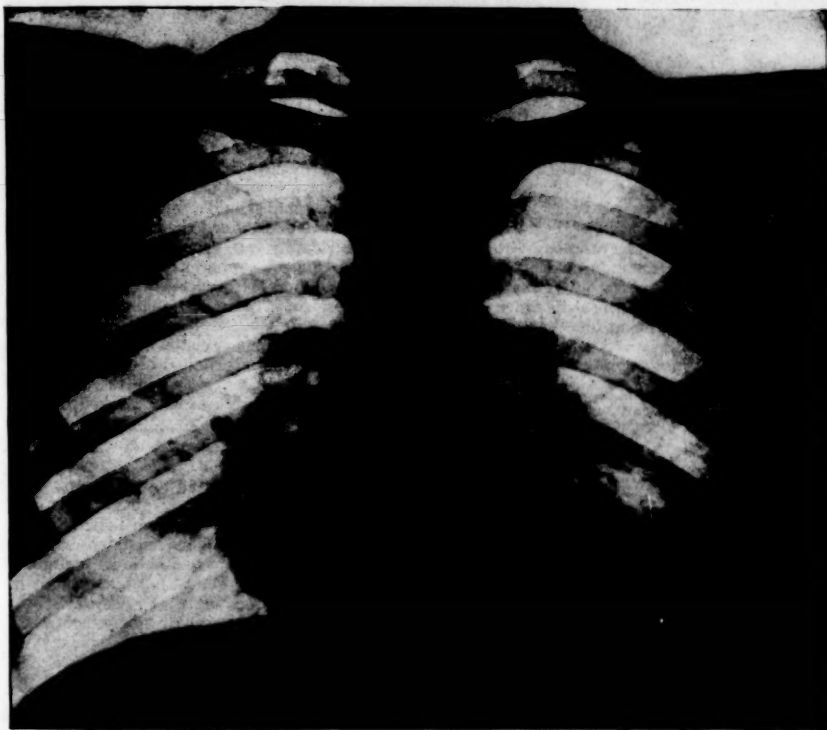


PLATE III.—Chest in July, eleven months after first admission, after x-ray treatment. Looks practically clear except for an area of somewhat increased density at the right base close to the heart border. Diaphragm on the left apparently high. Left costovertebral angle hazy.

polynuclears 55 per cent., lymphocytes 38 per cent., large mononuclears 2 per cent. Culture and smear negative. *Blood culture.* Staphylococcus albus. *X-rays August 21.* See Plates I and II. Plate of femur showed a line suggesting separation of periosteum from bone over the inner aspect of the middle third. No soft tissue changes visible. *August 28.* Plate difficult to interpret because of motion. Apparently little increase in size of dull areas in chest. Outline of diaphragm still visible. *September 5 and 7.* No definite change in appearance of chest or forearms. *Vital capacity.* September 11 3060 c.c.;

respiration. He required two grains of morphia in less than twenty-four hours. For two weeks he had dyspnea, marked cyanosis, and paroxysms of cough, usually unproductive.

September 12 a biopsy showed an atypical specimen on which the pathologists disagreed.

September 23 another x-ray treatment was given with no bad results. He had had four by September 29, and showed remarkable improvement. His nights were better than they had been at any time. October 3 the lungs showed about the same dullness to percussion as before, but striking absence of the showers of rales

previously heard. X-ray showed some lessening of the areas of involvement. October 6 he was discharged with advice for further x-ray treatment.

History of interval. After leaving the hospital he went to the country for a month, where his weight increased from 125 pounds to 143. November 24 his vital capacity was reported as 3,200 c.c. On his return to the city he developed a "pleurisy" with severe pain in the left posterior chest, constant, but worse on deep inspiration or movements of the body. This persisted except for occasional remissions following x-ray treatments. From June 20 to 27 it became more severe and was associated with severe pain deep in the right thigh and knee joint, becoming so severe that he was given morphia. June 26 this pain made him cry out.

Second entry, June 27.

P. E. Poorly nourished. Face flushed. Skin warm and moist. Lips cyanotic. Brown pigmentation over the chest, very marked on the left. Bone beneath scar on left forearm roughened. Pea to bean-sized firm non-tender cervical lymph nodes. Bulging in left lower chest posteriorly. Left chest moved very slightly. Right almost normal. *Lung* signs as shown in Figure

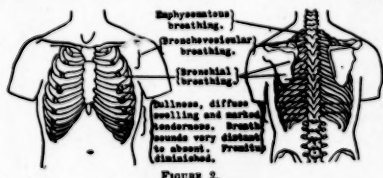


FIGURE 2.

2. Apex impulse of the heart in the fourth space 7 cm. to the left, not forceful. Midclavicle 8 cm. Right border of dullness 5 cm. Qual-

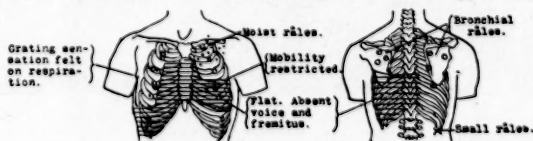


FIGURE 3.

ity fair. Rate 110. B.P. 116/66. *Abdomen* very tense. Spleen enlarged to percussion. Liver not enlarged.

T. 97.3°-103.5°; no elevation July 4-6 or 12-17. P. 90-140. R. 16-30. *Urine* 3 31-91. Sp. gr. 1.010-1.024. Alkaline at two of three examinations, the slightest possible trace of albumin, at one, occasional leucocytes at one. *Blood.* Hgb. 70-80%, leucocytes 12,200-8,800, polynuclears 80%-91%, reds normal except for slight anisocytosis at the first examination. *X-ray.* See Plate III.

A surgical consultant found no evidence of perinephric abscess. The patient improved before as well as after his first x-ray treatment. July 17 he was discharged, to return for x-ray treatment.

History of interval. July 23, two days after his third x-ray treatment, he suddenly developed "shingles" involving the left side of the chest wall from spine to midline over a breadth of four inches. This lasted three weeks, and continuous pain and tenderness or hyperesthesia two or three weeks longer. September 15 he went to the country for three weeks, and felt well and active until three days before leaving. Then he developed dyspnea and a feeling of hardness in the left lower chest. He went home and rested. The dyspnea disappeared, but returned October 19. During the next few days he had severe pain in the right upper chest and shoulder on deep inspiration. His weight had remained the same; his appetite had been steadily fair. The left forearm swelled at times for no apparent reason, becoming swollen and firm with edema which in about a week subsided. Twice since his discharge he had very distressing dull aching pain in the outer thigh along the sciatic nerve (!) subsiding in a week or two. He had been told that the prognosis was hopeless. When the pains became too bad he took a pill with marked relief.

Third admission, October 26.

P. E. Emaciated. Sweating profusely. Lying on his left side in much respiratory distress. Occasional attacks of cough with little sputum. Skin over left chest and abdomen tense, shiny, and scaly. Left chest moved little with respiration. Two substernal glands felt, also glands in left axilla and both groins. *Lung* signs as shown in Figure 3. *Heart* apparently pushed to right.

Left border not determined. Right border 7 cm. Sounds heard only to right of sternum. To-and-fro rough murmur sounding like a pericardial rub. *Abdomen.* Almost board-like rigidity in both upper quadrants and considerable in the lower quadrants. Impossible to palpate through it. Superficial veins distended. No tenderness. *Extremities.* In middle of left forearm an oval non-tender bony mass with smooth surface, merging with bone. Right thigh slightly tender along course of sciatic.

T. 99°-96.3°. P. 118-140. R. 34-20. *Urine.*

Normal amount, cloudy, sp. gr. 1.034, a very slight trace of albumin. *Blood.* Hgb. 65%, leucocytes 16,200, polynuclears 85%, reds 4,160,000, slight achromia. *Chest taps.* *October 26.* Eighth interspace at angle of scapula and in posterior axillary line. 30 c.c. of thick slightly viscous bloody fluid which clotted almost immediately obtained after an hour of manipulation of needle and position with strong suction. 80% large mononuclears, 10% small fibroblastic (?) cell types, 5% polynuclears, 5% fragmented cells, many red blood cells, four mitotic figures seen, leucocytes 36,000. Fluid clotted too quickly for count of red blood cells, but it must have been very high—2,000,000-3,000,000. *October 28.* Eighth left interspace just below scapula. 2 c.c. thick bloody fluid which clotted quickly. On manipulating trocar it seemed as though there were adhesions along the chest wall.

The patient was propped up in bed and kept comfortable with morphia and caffeine. *October 28* he died.

DISCUSSION

BY DR. RICHARD C. CABOT

NOTES ON THE RECORD

There are symptoms here referring to very different anatomical sites: in the first place swelling on the left femur; then cough which makes us think of a mediastinal lesion; then pain in the right lower back; fourth, a pain in the right thigh; fifth, bloody cloudy fluid taken out of the left chest. Thus we have trouble in five different parts of the body. When we have so many sites of disease in a young person we naturally think of syphilis or of neoplasm. Tuberculosis is also a possibility. In an older person we might think of arteriosclerosis also. But at his age syphilis or neoplasm—more probably neoplasm, because we have no evidence of syphilis so far—are in our minds after reading this history.

NOTES ON THE PHYSICAL EXAMINATION

1. There is friction apparently below the left nipple.

2. The lung signs are not characteristic of anything in particular. They point more to the left chest (although there is evidence of something in the right) and give evidence rather more of fluid than of solid. But nobody could make a diagnosis on those chest signs.

3. "The right pulse greater than the left" may be of significance, but often is not. I take it the blood pressure measurements were both on the same side.

4. In the account of the extremities there is

a good deal of mixture of description and conclusion which might well be separated.

5. The chart is about half afebrile and about half febrile, in two periods, the pulse meanwhile going pretty steadily up and the respiration also slowly ascending. Certainly part of his time here then he was febrile.

6. There is nothing significant in the urine examination.

7. In the blood they are looking for abnormal cells with reference to the question of a bone-marrow tumor. My experience under those conditions is that we look hard, see things we do not often see, and think they are abnormal. Without seeing that blood I should not be able to say there was anything abnormal there. In later examinations there was some real anemia, which is more important than what went before. The streptococcus albus I suppose was contamination.

8. I do not think the taps leave us any wiser than we were before.

9. We come now to the x-ray, which is I suppose the most important examination in the case. Before knowing the results of the x-ray I will say that I am thinking especially of neoplasm now, as I did from the history. Dr. Holmes, will you demonstrate these x-ray plates?

DR. GEORGE W. HOLMES: I remember this case very well. I have seen the plates taken of the femur at the other hospital and others taken in Boston at a private clinic, which showed similar changes to those shown in our plates, perhaps a little more marked. If we were going by these plates alone we should have some doubt whether there was anything here as far as the bone is concerned. There is some thickening of the soft tissue, and the cortex is a little thicker than normally and a little irregular. In some of the other plates we thought we could see a separation of the periosteum from the shaft, but the plates of the femur are rather indefinite.

The plates of the forearm are much more characteristic. Plate I is one of the first. There we see a fusiform thickening of the bone extending down to about the junction of the upper and middle thirds; the bone is more dense, the medullar canal is partially obliterated, and the outline is irregular. Along some parts of the irregular area there are spicules of bone which seem to radiate out into the soft tissue, and the soft tissue presents a thickened area in the same region as the thickening in the bone. From such an x-ray plate one would of course think of malignant tumor, and also of osteomyelitis and syphilis. In syphilis the lesion is usually multiple, and a careful examination of the other bones, with the exception of the femur, showed nothing which we could interpret as syphilis or any pathology. An osteomyelitis, unless very low-grade, would show considerable bone destruction. This process is almost entirely proliferative. The radiating lines extending out

into the soft tissue are quite characteristic of tumor.

In malignant tumor of this type we get a thickening of the periosteum, possibly of the endosteum. Then fine lines of bone radiate out into the soft tissue and terminate freely. The periosteum may be separated from the bone by the tumor underneath. In osteomyelitis the new bone is parallel with the shaft, never at right angles. In lues we do get it at right angles, but it comes in the form of loops and never terminates freely as these do. So we are inclined to think that this is tumor.

Plate II is one of the early plates taken of his chest. This is a fairly characteristic one. The shadow of the diaphragm is rather indistinct; but the striking things are these sharply defined irregular masses of markedly increased density throughout the lung fields. Some of them in the upper part of the chest bring out the characteristic appearance much better. The possibilities at that time to be considered were bronchopneumonia, multiple lung abscesses, and metastatic malignant tumor. In all infections of the lung the lesions are usually not so sharply defined. They are surrounded by areas of less density, which gradually fade off into normal lung. There is no inflammatory reaction around these nodules, consequently they are very sharp. An abscess shows a cavity in the centre usually. The differentiation can be shown in the x-ray plate. And abscesses would not be so multiple as this. So that we considered we had sufficient evidence to make a diagnosis of malignant tumor, probably arising in the forearm, with metastases in the lung. We were not able to account for the condition of the femur. Primary bone tumors very rarely metastasize to bone, but frequently to the lung.

The other plates were all taken after radiation. Here (Plate IV) is a plate taken of his

the thickening is less marked, and the soft tissue thickening and the spicule formation have entirely disappeared. So that now we have simply new bone laid down in the region of the lesion, just as after osteomyelitis or after a fracture. The arm remained this way until the patient died.

Here (Plate III) is a plate taken of his chest after radiation. We notice that the masses that were so obvious in the other plates have practically disappeared. There is a small one on the left side. The changes near the heart border have not entirely cleared up. At the left base is thickening and obliteration of the outline of the diaphragm, which may represent a small amount of fluid or possibly a tremendously thickened pleura in that region. He was kept under observation, and a large number of plates were taken from time to time.

In this plate we see that the process remains about the same, with very little change. In a plate taken a little later the process at the left base seems to be increasing a little, and also the one on the right. The residual shadow at the right border has increased.

The next plate (Plate V) is one of the last taken. Here the mass on the left side occupies the whole lower lobe, and the mass on the right has increased very definitely and resembles somewhat the pictures in the early condition.

His first treatments were given over the forearm, and it was cross-fired, using two areas, one from the front and one from the back of the arm. We used radiation filtered through four mm. of aluminum, which gives a wave-length of about .26. That is relatively long. Other parts of the patient's body were protected, and both exposures of the arm were given in one day. The following day he had a sharp rise in temperature and a marked increase in dyspnea. His symptoms resembled very much anaphylac-

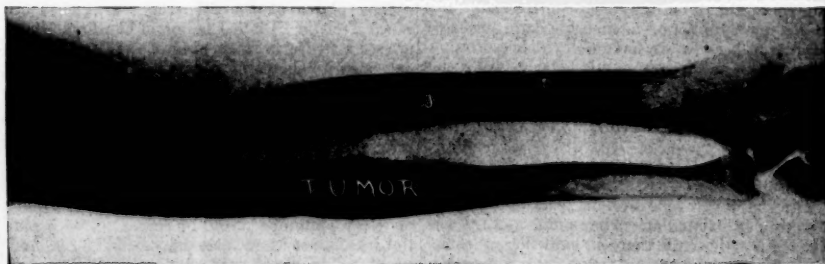


PLATE IV.—Forearm October 5, three weeks before third admission, after X-ray treatment.

arm after a series of x-ray treatments. We notice that the character of the lesion has changed considerably since the first plate. The thickening of course is still present. We should not expect bone to disappear under radiation. But

tie shock. He was put on oxygen, bolstered up in bed, and finally recovered. His arm began to get smaller soon after that, and he had occasional treatments given to the arm afterwards, which seemed to maintain it in the same state.

Whenever he had a treatment over the chest his arm would swell slightly and be a little painful.

DR. CABOT: How do you account for that?

DR. HOLMES: I don't know.

DR. CABOT: Treatments for his chest would give him trouble in his arm?

DR. HOLMES: We were never able to explain it. The only explanation I could give was that whatever trouble he had was very susceptible to radiation, broke down rapidly, and threw all sorts of protein into his blood with the anaphylactic reaction.

improved for a time, then failed to improve under treatment.

There have been cases reported of extensive fibrosis occurring in the lungs following heavy radiation. That is, the men who report them feel that with heavy radiation we are able to destroy some of the normal lung tissue and produce a permanent injury to the pleura, and extensive fibrosis of the lungs may take place. At the time of this last plate we were not sure whether we were dealing with a recurrence of the growth in the lungs or whether we had a



PLATE V.—Chest October 5, three weeks before third admission, showing recurrence.

A biopsy was done, the diagnosis was made positive, and we felt that we were justified in undertaking almost any measures. We started him with the same type of radiation over the chest. The masses disappeared rapidly, and he had no severe symptoms following it such as he had the first time with radiation over the arm. He recovered so that he was able to go back to work and was practically free from symptoms for a period of over a year. Then he began to have recurrent symptoms. We treated him again, using a much shorter wave length. He

condition resulting from our heavy treatment, and we thought we would be safe and not treat. He went from bad to worse. The necropsy proved that we were wrong, that we should have continued our radiation. Whether we should have been able to control this thing I do not know.

A PHYSICIAN: May I ask how long a time elapsed before the lung fields were clear of the large masses in the chest?

DR. HOLMES: His lungs remained comparatively clear for over a year. They never were

entirely clear. There was residual all the time, which developed in a matter of about two months or more. We could see that it had been gradually getting a little larger all the time. Then he would have x-ray treatment over the chest and it would get smaller.

DR. CABOT: Have you, from the x-ray findings, any particular guess as to where it started?

DR. HOLMES: I think it started from the arm. What is the evidence? In the arm we got a fairly characteristic picture of malignant bone tumor. We have not got it anywhere else. That of course is a common place for them to start, and they commonly metastasize to the lungs.

DR. CABOT: If it had been a secondary bone tumor would you see characteristics of that in the x-ray?

DR. HOLMES: We should have to say it started either in the arm or in the leg. If it started in the lung it would not have metastasized to the bone. Such metastases are rare anyway, and when they do occur they give a purely destructive lesion in the bone, rather than a proliferative lesion such as we have here.

DR. YOUNG: Is there any diagnostic significance in the way in which a tumor reacts to x-ray? Does a carcinoma react differently from a sarcoma?

DR. HOLMES: Yes.

DR. YOUNG: Is it definite enough so that one can say it is this as against that?

DR. HOLMES: Yes, I think so. The sarcoma is much more susceptible to radiation than carcinoma.

DR. YOUNG: Is there any distinction between carcinoma and lymphoma?

DR. HOLMES: Yes. Lymphoma would be much more susceptible even than bone sarcoma in the bone. The picture might be lymphoma, but that does not account for the arm.

DR. CABOT: Lymphoma is most susceptible, with bone sarcoma second, and carcinoma third?

DR. HOLMES: Yes. Here we should have to assume that he had two diseases, primary sarcoma of the bone and primary lymphoma of the chest. The thing cleared up so quickly we might say it was infection in the chest and tumor of the bone with it.

DR. MEANS: Didn't the first lesion in the arm present a rather stormy appearance? One consultant was fairly sure the patient had a myelitis. There was a good deal of redness and swelling and a lot of tenderness and fever, and this consultant thought it was osteomyelitis, explaining the picture in the lung as an independent disease. He was impressed by the picture and he disregarded the history; that was the difference.

DR. HOLMES: Of course we don't know what would happen to osteomyelitis if radiated. The general impression is that we should make it considerably worse, and that from radiating an

osteomyelitis you might get just such a stormy upset as he had. The reaction that he had is unique as far as my experience goes.

DR. CABOT: Is it unique in kind or in degree?

DR. HOLMES: In kind. I never have seen any lung symptoms following radiation of a bone tumor.

DIFFERENTIAL DIAGNOSIS

DR. CABOT: I cannot imagine anybody's thinking seriously—in view of all the facts we have—of any diagnosis except malignant disease,—osteosarcoma, I suppose, with metastases in the chest. I see no evidence that there is any other disease in the man. Pericardial rub has been spoken of, and perhaps there is pericarditis, but one can see how a rub could arise from contact with these tumors. We do not need to suppose pericarditis or any other inflammatory lesion. His fever can be accounted for by the malignant disease. Of special interest, as Dr. Holmes has said, is the reaction resembling those we call anaphylactic, easily to be explained in the way he suggested as the breaking down of protein substances and their absorption.

I think Dr. Richardson will merely confirm what Dr. Holmes has said about the presence of malignant disease in the chest and presumably in a good many other places where we have no indications of it.

PRE-OPERATIVE DIAGNOSIS

Tumor of ulna.

OPERATION

Local novocain. Incision made over middle of ulna. Bone partly solid, partly moth eaten, surrounded by thickened periosteum which did not appear characteristic of sarcoma, but suggested syphilis or chronic osteomyelitis. Specimen of periosteum and bone removed for examination. Wound closed.

PATHOLOGICAL REPORT

Microscopic examination of small fragments of bone showing clusters of atypical cells suggesting osteoblasts, with fibrils and areas of osteoid tissue.

Osteogenic sarcoma.

H. F. HARTWELL.

BACTERIOLOGICAL REPORT

Culture from bone negative.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Osteosarcoma of left ulna with metastases to left lung and pleura.

DR. RICHARD C. CABOT'S DIAGNOSIS

Osteosarcoma of the ulna with metastases in the chest.

ANATOMICAL DIAGNOSIS

(Osteogenic sarcoma of left ulna.)

Metastatic osteogenic sarcoma of lungs, bronchial lymph glands and paravertebral and retroperitoneal tissues.

Acute pericarditis.

DR. RICHARDSON: There was a large bulging area on the left side just above the costal border, and the cutaneous vessels of the anterior wall of the thorax, the shoulders and along the sides of the abdomen were prominent. There was no particular deformity of the left forearm at the time of necropsy, and we were not allowed to go any further with the examination. The organs had to be replaced in the body.

There was a little thin pale fluid in the peritoneal cavity. The mass had pushed down the stomach, spleen and intestines so that the lower border of the stomach was six cm. below the umbilicus, the small intestines practically in the pelvic cavity, and the transverse colon skirting along the top of the bladder. Below the diaphragm, except that this mass pushed down in the retroperitoneal tissues, there was nothing except that on the right side of the pelvic cavity there was a mass of new growth tissue similar to that in the lung. It was hemispherical, rather discrete, and measured $7 \times 3\frac{1}{2}$ cm. The diaphragm on the right was at the fifth interspace, on the left at the eighth rib. A mass of new growth tissue in the region of the left lung pushed the diaphragm down to within a few cm. of the crest of the ilium; down along the retroperitoneal tissues. It pushed the spleen forward so that its long axis was parallel to the median line, and its lower pole was eight cm. above the crest of the ilium.

There was no fluid in the pleural cavities, and no adhesions on the right; the left was bound down to the tumor in that region. The bronchial glands were slightly enlarged and some of them showed new growth tissue. In places in the new growth tissue there were peculiar rust-colored areas of necrosis. The right lung was voluminous and showed metastases here and there, some of them of pretty good size, but nothing in comparison with the other side. On the left side the ovoid mass of new growth tissue measured $31 \times 24 \times 24$ cm. In some places the pleura was thickened and retracted, with possibly some streaks and areas of fibrosis lying along the tumor tissue. Scattered through the large mass of new growth tissue were in places large rust-colored areas of necrosis.

The pericardium showed acute pericarditis. The heart weighed 275 grams. The left border

was in line with the left border of the sternum, the right at a line perpendicular to the junction of the middle and outer thirds of the clavicle. The valves and cavities were negative, the aorta and branches negative except that the ovoid mass flattened the ascending thoracic portion of the aorta markedly.

The abdominal organs require no comment. The bones of the body, as far as dissection permitted, were negative.

Microscopical examination of the kidney, liver, spleen, etc., was negative.

DR. CABOT: Have you any doubt that this man's life was prolonged by radiation?

DR. HOLMES: No, I have no doubt of it. He would have died sooner, but what is more important, he was able to carry on very comfortably until a very short time before death.

DR. CABOT: It was a prolongation not merely of existence but of actual work. What seem to be the prospects for improving therapy in cases of this kind? We have had one or two cases where you had extraordinary temporary results in banishing from the chest great masses of tumor, but with recurrence. Do you look for gain? Do you think we are likely by the methods we now control to be able to hold this lesion off longer?

DR. HOLMES: There is not a great deal of evidence that points towards cure, but I think that we are going to be able to make it easier for the patient while undergoing treatment; that there will be less Roentgen sickness. As for the actual prolongation of life, it does not look as though we were going to be able to accomplish a great deal once widespread metastasis has taken place. There are some interesting data in the recently published accounts of German clinics. In the clinics where the radiation treatment is controlled by the surgeon they are using radiation for all cases of malignant bone tumor rather than surgery. I think there is some question whether cutting into a tumor or even amputation of the primary tumor does not shorten the life of the patient. It is better to treat the primary growth with radiation rather than to remove it. It is possible that work along that line may enable us to carry these cases longer and more comfortably.

DR. MERRILL: Dr. Holmes told us that when that appearance was seen in the lung the question arose whether it was recurrence or fibrosis. Knowing as we do in this case that it was not fibrosis, but recurrence, in another similar case, were we not deterred, what would be the prospect of giving him another lease of life?

DR. HOLMES: I think it would be pretty good.

DR. MERRILL: And even presuming that it was a condition of fibrosis and there still remained a question of recurrence, what would be the great harm in producing a condition of fibrosis? A man can exist with a large amount

of fibroid change in his lung. Suppose we treated him, what harm would it do?

DR. HOLMES: I do not know that it would do any. I think we were unduly scared. But there has been a good deal of experimental work recently that has given us a rather bad scare. Some of the patients develop, for example, a Roentgen cachexia which goes on to death. So that we feel rather shaky about going ahead. I think perhaps if we had it all to do over again we should recognize we made a definite mistake in not doing it. Of course the mass that developed in the abdomen would probably have gone on and we should not have been able to control it. Other cases similar to this have developed metastases in the brain which we could not control. The lymphoma cases, which are much more susceptible, we can control in the chest, but they die of metastases in the brain. So that I think with metastasis we are going to lose the patient anyway.

CASE 10052

A schoolgirl of ten entered November 16.

F. H. Good.

P. I. Negative except for measles in early childhood.

P. I. The April before admission clubbed fingers were noticed. After two salt water baths in August the child had pains in her legs, she said in the knees and hips, her mother said in the thighs and calves. Then she began to have dyspnea. She was sent to a hospital and had been in bed a little. November 13 she began to cough. November 15 and 16 she vomited and was more dyspneic than ever before, requiring three or four pillows. The day of admission slight edema of the hands and feet was noticed. Her appetite and sleep were poor. She cried and moaned at times in her sleep.

P. E. Well nourished. Face flushed. Skin and mucous membranes slightly cyanotic. Apex impulse of the heart seen and felt in the sixth space $1\frac{1}{2}$ cm. from midsternum, 7 cm. from the nipple line. Right border of dullness $3\frac{1}{2}$ cm. from midsternum. Loud harsh presystolic murmur best heard an inch inside the apex. Soft systolic at the apex transmitted to the axilla and back. First sound at apex much accentuated. Soft systolic and diastolic murmurs at the aortic area. Marked presystolic thrill. Marked capillary pulse in finger and toe nails. Pulses small volume, fair tension, Corrigan. Artery walls not felt. Lungs normal except for a few medium moist râles at the right lower border. B. P. 120. Abdomen. Right upper portion dull. Some dullness, not shifting, in the left flank. Liver dullness from the sixth rib to 9 cm. below

the costal margin in the nipple line. Liver hard and somewhat tender. Extremities. Very slight edema of both ankles. Fingers and toes markedly clubbed. Pupils and reflexes normal.

T. 96.2° - 101.8° , with seven periods of from one to five days of no elevation. P. 90-152. R. 23-60. Urine. $\bar{3}$ 25-57 except for one record of $\bar{3}$ 15. Sp. gr. 1.016-1.030. Cloudy at six of ten examinations, the slightest possible trace to a large trace of albumin at nine, rare to many hyalin or granular casts or both at five, a few to many leucocytes at six, a few to rare red blood corpuscles at two. Blood. Hgb. 70 per cent., leucocytes 11,000-54,600 at thirty-five examinations, 8,000 at one, reds 3,520,000-3,900,000, slight achromia at entrance. November 16 polynuclears 67 per cent., transitionals 11 per cent. December 9 polynuclears 47 per cent., transitionals 30 per cent. "The transitional cells are basophilic, generally mononuclear in type, of relatively enormous size, as large as endothelial cells. They are phagocytic. Inclusions of red cells and the polynuclear cells are seen. Many have vacuoles. The protoplasm is non-granular and is frequently thrown out into long pseudopods, sometimes stretching half way across the field of the microscope."

The child's color improved very much, the lungs cleared, the vomiting ceased, and the dyspnea disappeared. She had moderate dry cough. A blood culture was negative. The temperature rose in the afternoons. November 28 Dr. Cabot found the heart regular, a high pitched systolic at the apex, a rough rolling diastolic loudest in the third left space; no heart sounds anywhere. She continued to make slow improvement and seemed comfortable during the day, though she still tossed and moaned in her sleep.

The night of December 20 she complained of pain in the cardiac region for which no cause could be found. She gradually faded. The morning of December 29 she suddenly cried out with pain in the upper abdomen. Her pulse became feeble and intermittent and remained poor, though she became more comfortable under morphia gr. 1/12. A few days later she was feeling much better and anxious to get up. The improvement was followed by marked failing. By January 6 her face was very puffy and the general condition poor. The pulse for the first time showed signs of flagging. She had considerable pain requiring morphia. The edema gradually increased, the pulse grew slower and very irregular. January 11 she died.

DISCUSSION

BY DR. RICHARD C. CABOT

NOTES ON THE HISTORY

This patient was in the hospital nearly two months. We are all ready to recognize a cardiac

affection—much less probably a renal affection—of the rheumatic type, in a child of ten.

NOTES ON THE PHYSICAL EXAMINATION

She has a very big heart.

We do not know what the diastolic blood pressure is; it probably would have been low.

We have evidences of passive congestion in the liver, legs, and presumably elsewhere, with a lesion which looks as if it might be both aortic and mitral. Certainly we ought to suppose it aortic from the changes in the pulse.

There is a long chart, practically febrile most of the time, and a pulse on the whole steadily going up. She is ten years old. She has got beyond the time when children have fevers without any particular known cause. Some infection ought to be causing this fever; as we have been thinking of the heart, presumably a cardiac infection.

An important question here is of nephritis or no nephritis. I should say no nephritis. This is the urine of passive congestion on the whole, I think.

There is a very high leucocytosis. I remember this case. I remember these cells. They crawled all around the field and picked up whatever there was in sight with great lassoes thrown out. It was the most extraordinary case we ever saw. We wrote up a similar case, and a great many photomicrographs were taken of the blood.* The particular significance of these phagocytic cells I do not think anybody has ever explained. They occur in normal blood in small numbers. They occurred in enormous numbers in this case and one or two others I have seen of acute endocarditis. They must represent some phase of the defense against sepsis. They are present in enormous numbers in some of these cases, and cause a serious anemia by eating up red cells. They eat so many red cells of their own circulation that they produce anemia of a type that has never been described I think except here, autophagocytic we could call it.

DIFFERENTIAL DIAGNOSIS

She died, I think, with acute and chronic endocarditis of the aortic and mitral valves, hypertrophy and dilatation of the heart, and general passive congestion.

There is no particular morphology post mortem corresponding with these phagocytic cells. They are a phenomenon of the blood stream during life and have no special analogies post mortem. She may have had some emboli which caused the sharp pains. I think infarcts will probably be found in the kidneys and spleen, very possibly elsewhere.

The anemia is probably to be hitched up with the sepsis, the acute endocarditis, and as a part

*Mary A. Bowley, M.D., The occurrence of atypical phagocytic cells in the circulating blood. N. Y. Med. Jour., vol. 85, page 674.

of that sepsis the activity of these phagocytic cells may have done something.

A PHYSICIAN: Do you believe this blood picture is absolutely characteristic?

DR. CABOT: No; I do not know nearly enough to say that. The two cases I remember vividly were both of acute endocarditis. But it must occur in other conditions, and I do not know that it is particularly hitched up with any form of sepsis, though that is my best guess, because these cells are defense cells. It seems to me it may be explained as a phenomenon of the attempt to establish immunity, and therefore comes in any type of sepsis. But I do not believe the endocardial sepsis is the only cause. I do not know where they come from. We see them in the marrow, in the liver, glands and elsewhere. Of course they certainly can be met in a great variety of places outside the marrow. I do not believe they have any single local habitation.

A PHYSICIAN: Are they more or less constant?

DR. CABOT: I have known them to persist for over six months, and I have known them extraordinarily swift in their changes of numbers, which vary not only within an hour but within a minute, as if they were shot out in great showers from some source, and very irregularly. I made a blood chart at one time for a day, and very sharp rises and falls in the leucocytes from hour to hour and minute to minute were recorded. They are not polynuclear; they are nearest to what we call ordinarily large mononuclears or endothelial leucocytes. They have one oval nucleus, eccentrically placed; they have a lot of protoplasm, nongranular, or with only azur granulation. The most characteristic thing is the pseudopods, which may be only little knobs or may go across the field like a lasso. It is one of the most exciting things I have ever seen to see them crawling about and eating everything there is in the blood.

A PHYSICIAN: Except for this practice it resembles very much the vascular endothelial cells.

DR. CABOT: Yes; of course that term large mononuclear itself is meant to let us out in any direction we want to go.

A PHYSICIAN: Today a patient of this kind in this hospital would have a tonsil operation, wouldn't he?

DR. CABOT: I think he probably would, although there is nothing said about the tonsils here. We probably should go scratching around and get anything we could find, whether there were any tonsils there or not. On general principles that is about the way we behave.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Endocarditis.
Hemophagocytosis.

DR. RICHARD C. CABOT'S DIAGNOSIS

Acute and chronic endocarditis of the aortic and mitral valves.
Hypertrophy and dilatation of the heart.
Chronic passive congestion.

ANATOMICAL DIAGNOSIS

1. *Primary fatal lesions*

Congenital malformation of the aortic valve with polypous endocarditis. (Aortic stenosis.)
Chronic endocarditis of the mitral valve, slight.

2. *Secondary or terminal lesions*

Chronic passive congestion of the lungs, liver, spleen and kidneys.
Hydrothorax.
Hydropericardium.
Ascites.
General anasarca.
Infarcts of the kidneys.
Acute glomerulonephritis.

3. *Historical landmarks*

Chronic pleuritis, slight.

DR. RICHARDSON: We were not permitted to examine the head.

The skin and mucous membranes generally were pale.

There was marked edema of the lower extremities and some edema of the face,—anasarca present.

The peritoneal cavity contained a moderate amount of clear straw-colored fluid.

The left pleural cavity contained a small amount of thin clear fluid, but the right cavity was half full of a similar fluid. There were a few old pleural adhesions. The trachea and bronchi contained a moderate amount of frothy fluid. The bronchial lymph glands were considerably enlarged, but otherwise negative. The lungs showed passive congestion.

There was a slight excess of fluid in the pericardium, but otherwise the sac was negative.

The liver showed chronic passive congestion.

The kidneys weighed 230 grams, which is rather small. The tissue was pale; the markings were made out, the cortex five mm. They showed in one or two places small infarcts and microscopically they showed some acute glomerulonephritis. The bladder, uterus, tubes and ovaries were not remarkable. The mesenteric and retroperitoneal glands were slightly enlarged but negative.

No definite thymic tissue was made out.

The heart weighed 412 grams,—much en-

larged. The myocardium was thick and pale. The cavities were enlarged, especially on the left side. The mitral valve showed a slight amount of chronic endocarditis. The circumference was eight cm. The aortic valve presented but two cusps, each large, and showing scattered along the margins and over the bodies of the cusps numerous smaller and larger polypoid vegetations. These were so extensive that at one place at the base of one of the cusps there was a small cavity containing purulent necrotic material, practically a small abscess.

At a point on the intima of the aorta at the junction of the ascending thoracic portion and the arch there was a small mass of vegetative material very like that on the aortic cusps. In this there was a small cavity containing purulent necrotic material. In other words, we have in this case a good example of one of the things that can occur in the aorta and be an aortitis and not syphilitic. And it was situated, as far as I can remember, at the greatest distance from the aortic cusps that we have seen.

DR. CABOT: The so-called mycotic aneurism.

DR. RICHARDSON: Yes.

The bone marrow was somewhat hyperplastic, and in smear preparations Dr. Wright was unable to find the big cells seen in the blood during life, but he did find in the lymph nodes many large cells even with the lassoos, and containing pigment,—in other words phagocytic cells which were like those present in the blood smears taken during life.

The lymph nodes were generally enlarged, and in gross showed nothing else. But in the histological examination of those glands Dr. Wright found these octopuses of the blood.

CASE 10053

A Nova Scotian teamster of fifty-three entered October 20.

F. H. Unimportant.

P. H. His general health was good. He had typhoid, malaria and erysipelas when young. He denied venereal disease, but had occasionally had discharge from the penis. He had slight cough.

Habits. He drank occasionally.

P. I. Fifteen years before admission he had swelling of the penis followed by discharge and some frequency and inability to control urination. This condition had continued. For the past year he had been unusually free from trouble, but his urine had been bloody at times. October 10 he had complete retention. His physician was unable to catheterize him and

had to tap the bladder. He stopped work and had been better. The morning of admission he passed a small amount of urine.

P. E. Poorly developed and nourished. *Heart* normal except for some irregularity in rate. *Lungs and abdomen* negative. Bladder dullness two inches above the pubis. Well marked right inguinal hernia with large ring. *Rectal examination* painful. Prostate small, symmetrical and firm. A bougie passed into the urethra met with an obstruction at about five inches. A filiform would not pass. *Extremities*. Irregular scars on both legs. *Pupils* normal. *Reflexes* not recorded.

The morning of admission *T.* 100.9°, *P.* 81, *R.* 20, *urine and blood* not recorded.

Operation was done the day of admission. For the next week the patient was comfortable and drainage was good. October 30 he was worse. The pulse was failing. November 1 some pus expressed from the wound showed Gram-positive cocci.

That day a second operation was done. The patient became steadily weaker after it and died the next day.

DISCUSSION

BY DR. EDWARD L. YOUNG, JR.

Up to a year ago at least—I do not know whether it is true now or not—there was no such thing as a non-venereal prostatitis recognized by the Medical Corps of the Army. Nevertheless this is a common condition. A non-venereal urethritis is not so common, but does exist. When we have the story that urethritis occasionally recurred it is probably a venereal disease whether the patient recognizes it as such or not. We have in addition here the story that there was not only discharge but frequency and inability to control urination. That on the face of it suggests past venereal disease with scar formation. A stricture which comes on slowly can go to a very marked degree of contraction without the patient's apparently being aware that there is anything wrong. Whether that is because they are mentally unable to recognize a condition of change such as is present or because it comes on so slowly is not always clear. But it is not uncommon to see a stricture which goes on to the point where no bougie can be passed, and yet the patient may come in for some other condition, as a patient I remember, for hematuria, who had an impassable stricture but denied that there was anything wrong with urination and said on cross-questioning that it was a "little slow." So that this story is not unlike urethral stricture.

This means a state of obstruction which has allowed the bladder to fill up, and only when a certain tension is arrived at is the patient able

to get rid of some urine by the obstruction. It is simply an over-flow urination that he has.

The mere fact that the prostate is not enlarged by rectum does not prove that there is not an obstructing prostate intravesically. Nevertheless, at fifty-three, simply on the age limit he ought not to have it.

In other words, this man has an urethral stricture shut down to the point of almost complete obstruction, with an overflow bladder. It is interesting that we can say almost arbitrarily that he has not an obstructing prostate. It is only about once in one hundred cases that prostate and stricture are associated in the same case. The presence of a stricture seems to mean that there has been enough of an inflammatory process so that the resulting fibrous process in the prostate had been sufficient to prevent the growth of adenoma which we call hypertrophied prostate.

Of course the only thing to do to this man is to operate; but it must be remembered that he is in extremely bad shape. There is more to do than simply cutting the stricture. It has existed for a long time; the back pressure means that the kidneys have been damaged—how badly we do not know. Nevertheless the only thing to do is to give him immediate drainage. Of course the type of operation that will remedy both the back pressure and the condition causing it is a perineal section. The condition causing it is a stricture. I do not see that we have any right to consider any other condition now.

DR. YOUNG'S PRE-OPERATIVE DIAGNOSIS

Urethral stricture.

FIRST OPERATION.

Pre-operative diagnosis not recorded.

Gas and ether. Lithotomy position. Not possible to reach the bladder with any instrument. Sound introduced as far as possible. Median incision down to tip of sound, extended toward the anus with evacuation of considerable pus from the abscess. Digital exploration showed position of the posterior urethra. Wound and bladder carefully washed. The anterior urethra was washed out. A large catheter was passed to the bladder through the urethra and fastened in place with adhesive. The perineal wound was packed wide open. The patient was sent to the ward in fair condition.

FURTHER DISCUSSION

As this reads he should be pretty sick for a while and come back all right.

"Gram-positive cocci" I think means nothing.

As we are given the record here we do not know exactly why a second operation should be done unless to give better drainage to a septic process which we know was there.

I believe Dr. Richardson will find kidneys with dilated pelvis which are infected, dilated ureters with infection, a bladder wall which is thickened, and the bladder itself infected. The extension of the perineal sepsis may be considerable or it may be none at all. It may have nothing to do with his death, or it may have spread more than we think. I assume the second operation was to give better drainage to pus.

DR. YOUNG'S PRE-OPERATIVE DIAGNOSIS

Perineal abscess.

PRE-OPERATIVE DIAGNOSIS

Not recorded.

SECOND OPERATION

Gas and ether. The perineal wound was dilated with the finger. A finger was passed to the bladder and about the region of the prostate with the evacuation of a small amount of pus. No abscess was found. Rectal examination was negative. The wound was packed with iodoform about a rubber catheter which was passed to the bladder and held in place by silk worm gut sutures. The patient was sent to the ward in poor condition.

FURTHER DISCUSSION

I think that Dr. Richardson will find that the cause of his death, as far as anatomical evidence is concerned, is connected with the urinary tract. I see no evidence in the record to make us think anything else.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Prostatic abscess.
Septicemia.

DR. EDWARD L. YOUNG'S DIAGNOSIS

Perineal abscess.
Urethral abscess.

ANATOMICAL DIAGNOSIS

1. Primary fatal lesion

Abscess of prostate.

2. Secondary or terminal lesions

Pneumonia.
Diphtheritic cystitis.
Septic spleen.
Arteriosclerosis.

3. Historical landmarks

Chronic pleuritis, right.
Operation wound.

Dr. RICHARDSON: The prostate in this case was not enlarged. In the upper part of it there was a small abscess. The bladder showed areas of diphtheritic cystitis. The ureters and the kidneys were negative. There was extensive lobar pneumonia on each side.

Dr. YOUNG: A clean miss; but nothing in the record to call attention to the lungs. Was there any dilatation of the pelvis or ureters?

Dr. RICHARDSON: No.

Book Reviews

Gynecology. By WILLIAM P. GRAVES, A.B., M.D., F.A.C.S. Third edition. Thoroughly revised. Philadelphia and London: W. B. Saunders Company, 1923.

Previous editions of Dr. Graves's text-book and general reference book of *Gynecology* have received favorable review in the columns of the *JOURNAL*. In this third edition, the original arrangement of material has been preserved. Many changes have been made in the text, especially in the subject of ovarian tumors, including Sampson's work on perforating hemorrhagic cysts of the ovary. Descriptions of a number of new operations, chiefly plastic, have been added. Many additions have been made in the drawings from microscopic sections; so that besides 388 remarkably fine half-tone and pen drawings by the author, the illustrations now include also 146 microscopic drawings by Margaret Conree and Ruth Heustis, with 103 of the figures in colors. In every way this edition maintains and increases the high merit of the original work, and the credit which it reflects upon the author and his special branch of the profession.

A Text-Book of Anatomy and Physiology. By JESSE FEIRING WILLIAMS, M.D. Philadelphia and London: W. B. Saunders Company, 1923.

This text-book is well described by the publishers as new and unusual. It is designed for schools of nursing, normal schools, and colleges, and aims to present hand in hand the subjects of anatomy and physiology for students and workers in nursing, physical education, physiotherapy, occupational therapy, and the household arts. The design is excellent, but the method seems a little more than popular, and less than scientific. The approach is biologic, the structure and functions of the cell being made the beginning of study. Certainly, however, the book contains a large amount of material unsuited to the needs and comprehension of the average student of nursing. It has 369 excellent illustrations, 25 of them being in colors.

THE BOSTON Medical and Surgical Journal

Established in 1826

Published by The Massachusetts Medical Society under the jurisdiction of the following-named committee:

For three years HOMER GAGE, M.D., Chairman.
EDWARD C. STREETER, M.D.
EDWARD W. TAYLOR, M.D.
For two years WILLIAM H. ROBERT, JR., M.D.
ROGER I. LEE, M.D.
ROBERT B. OSGOOD, M.D.
For one year JAMES B. STONE, M.D.
HORACE D. ARBOLD, M.D.
CHARLES FROTHERINGHAM, M.D.

EDITORIAL STAFF

DAVID L. EMALL, M.D.
WALTER B. OGDEN, M.D.
REID HUNT, M.D.
ROBERT W. LOVETT, M.D.
FRANCIS W. FRABODY, M.D.
JOHN P. SUTHERLAND, M.D.
S. BURT WOLBACH, M.D.
GEORGE E. MINOT, M.D.
FRANK H. LAWET, M.D.
STEPHEN RUSHMORE, M.D.

WALTER F. BOWEN, M.D., Managing Editor

ASSOCIATE EDITORS

GEORGE C. SMITH, M.D.
WILLIAM B. BREED, M.D.
JOSEPH GARLAND, M.D.

SUBSCRIPTION TERMS: \$5.00 per year in advance, postage paid for the United States, \$7.50 per year for all foreign countries belonging to the Postal Union.

Material for early publication should be received not later than noon on Saturday. Orders for reprints must be sent to the printer with galley proof of paper. Upon written request, authors will be furnished free one hundred eight-page reprints, without covers, or the equivalent in paper to articles of greater length.

The Journal does not hold itself responsible for statements made by any contributor.

Communications should be addressed to The Boston Medical and Surgical Journal, 126 Massachusetts Ave., Boston, Mass.

THE IMPORTANCE OF COMPARATIVE PATHOLOGY

THE importance of comparative pathology is impressing itself more and more on the consciousness of medical men and veterinary men, and it is felt and suggested that a wider and deeper study of comparative pathology may aid in elucidating some of the yet unsolved problems of disease, and these are many. In Great Britain both the University of Cambridge and the Royal Society of Medicine in London are taking steps to further the advance of comparative pathology. At the present time in Great Britain especial point is given to the forward movement by the formidable economic facts of foot and mouth disease, which is prevalent in almost all parts of the country and which is occasioning great losses. So far, the measures to stamp out or even restrict the limits of this very infectious disease have proved useless despite the fact that thousands of cattle are being slaughtered daily and ports and areas are placed under the strictest quarantine. During the past twenty-two years there have been eighty initial outbreaks of foot and mouth disease in Great Britain. By initial outbreaks are meant those which are ascribed to the introduction of the virus from Europe, as distinct from the extension of the disease in Great Britain. No satisfactory explanation of the manner in which

the virus has been introduced has been found so far. Sir Stewart Stockman suggested that the virus might be air-borne, and in the *British Journal of Agriculture* for November last, in cooperation with Miss Garnett, discussed the possibility that the infection might be conveyed by birds.

However, the first object, at any rate, of the research worker, is to discover the originating cause or causes. While bacteriology has made progress, it is still baffled in the attempt to isolate the infective germs of such diseases as measles and whooping cough, scarlet fever, diphtheria, or foot and mouth disease. Evidently, in these instances we must be dealing with minute organisms. Indeed, we may be sure of this when it is found that they will pass through the pores of a fine filter, one which will effectively arrest ordinary bacteria. In short, they are filterable viruses. In comparative pathology lies our hope in this field, and it is well that the University of Cambridge and the Royal Society of Medicine have recognized this truth. It seems that the way is open to the solution of several hitherto insoluble problems by means of the equal cooperation of leaders in human and animal pathology.

The outstanding example of a disease which is common to both man and many animals is tuberculosis. It can be stated that in this instance it is known that the main facts and principles are absolutely identical whether men or cattle are dealt with. Research into this disease must always be veterinary as well as human. In this connection it is interesting and appeals to national pride to note that the greatest living pathologist is Professor Theobald Smith of Princeton University, who at Edinburgh recently gave an address on some aspects of the tuberculosis problem from the experimental and comparative standpoint. Professor Smith in this address referred in detail to some experiments he and his co-workers had made with cattle and with bovine vaccination. Before leaving the question of tuberculosis, it may be pointed out that several valuable lessons have been learned from research into bovine tuberculosis. One lesson taught by bovine vaccination is that some immunity is produced thereby. Attention may also be drawn to the fact mentioned by Professor Smith that through economic selection all cattle are killed in what is their infancy, and thus in studying morbid processes in them we are really studying a stage which is strictly analogous to human youth or adolescence. Moreover, it was the veterinary evidence which taught us that when the calf is removed from the tuberculous cow it may be reared in health. The application of this lesson to children has saved the lives of many, and according to the views of some has taught the lesson that inherited predisposition is a factor of negligible importance. On the other hand, it is contended by others that diathesis plays an

essential rôle in the initiation and development of many diseases. Llewellyn has written a notable article, published in *American Medicine* November last, in which he concludes that there is a "rheumatic" diathesis, that is, an innate predisposition to develop certain manifestations under favorable conditions. Nevertheless, healthy environment has much to do with enabling adults and especially children to resist the attacks of tuberculosis, and it is the same with cattle as with human beings. When cattle are housed artificially tuberculosis is prevalent; when they are "exposed" in the open it is comparatively rare. Children in fresh air and sunlight, as a rule, recover from tuberculosis in all forms. Again, to revert directly to the matter of comparative pathology, certain fundamental points in connection with morbid cytology, as in the problem of cancer, can be best and perhaps only answered by experimental observations on the lower animals. Medical research workers and veterinary research workers must pursue investigations hand in hand, and it cannot be doubted that in the future comparative pathology will be revealing continually secrets of the causation of disease not to be discovered by other means.

The diseases due to filterable viruses as, for example, smallpox, scarlet fever, measles, rabies, herpes, and numerous other diseases of plants and animals are, as said before, difficult to isolate on account of their extremely small size. In addition, investigation of such a disease as foot and mouth disease, should only be done under a rigorous supervision and such conditions of environment and control as will minimize the risk of originating further outbreaks. In short, researches of this nature should be undertaken only under conditions which will rule at Cambridge University and The Royal Society of Medicine, London, where skilled investigators of human and animal diseases will work together and compare results. Pasteur, the immortal pioneer in bacteriology, was the supreme example of this kind of research worker. He gave us the key to successful attack on the diseases of man by his researches on plants and sheep and cattle and dogs. Other workers in the same field should take a leaf from the book of the master and bend their energies to cleaning up the obscure points of disease by recourse to comparative pathology.

DRUG ADDICTION AND CRIME

A MEETING of unusual interest planned by the Boston Medical Library in association with the Middlesex South and Suffolk District Medical Societies, was held at the Library on the evening of Wednesday, January 30.

Hon. Thomas C. O'Brien, District Attorney of Suffolk County, has done his share in driving from office a ring which had entrenched itself by methods so corrupt and so revolting as to be almost unbelievable. He is still engaged in

bringing to justice certain members of this ring.

Much has been said regarding the obligation to be merciful which rests upon the District Attorney. Mr. O'Brien shows his true mercy in his constructive endeavor to determine and eliminate one of the great causes of crime. It was our privilege to learn from him what he has found regarding the relationship between drug addiction and crime. As physicians we should know the extent to which cocaine is responsible for the crimes which are constantly shocking the community and in which the criminals seem bereft of all moral sense.

We know of the Harrison law as an irritating and, as we think, an unfair tax and as a source of annual annoyance. We should know whether it is a success or a failure in diminishing drug addiction.

Not long ago the statement was made by a man familiar with the underworld, but a stranger in Boston, that he would guarantee to leave a club house in the heart of the city and return in half an hour with fifty dollars' worth of cocaine. This is in spite of laws so drastic that at present it is illegal for the sufferer from diabetes to have in his possession a hypodermic syringe with which to inject insulin.

It is our privilege as physicians to find out what we can do to lessen the number of drug addicts, and it is our duty as citizens to aid the District Attorney in the difficult and often thankless tasks he has undertaken.

Feeble-Mindedness

THE Chicago Department of Health, in considering the problem of feeble-mindedness, stresses the fact that, although most feeble-minded children are mentally retarded three or more years, it does not follow that all mentally retarded children are feeble-minded. Other causes, which can be overcome, may contribute to retardation, and proper training from the start may make useful citizens out of many who are thus retarded. The psychological test cannot be taken as a sole criterion. Nevertheless, in England about four persons per thousand of the population are feeble-minded; the feeble-minded in the United States are usually estimated at four or five hundred thousand, and as a result of the psychological test in the United States Army about five men per thousand were discharged on the ground of inadequate intelligence.

Mental defects are held to concern health authorities for the following reasons:

"First—The various mental defects are considered as disease entities. This cause and course of development are known with a considerable degree of precision.

"Second—Many of the defects are transmissible through heredity.

"Third—Mental defects are, to a great extent, preventable, and many are curable.

"Fourth—They are frequently the result of communicable disease, such as syphilis or tuberculosis.

"Fifth—They are often the result of social and economic ills, malnutrition, and disease.

"Sixth—They are frequently the underlying causes of disease, prostitution, disorderly behavior, and crime.

"The care of these defectives is not a police duty, but a health duty, to prevent or remedy mental defects and to control the defectives who are unwilling or unable to control themselves."

The problem will be solved, according to this report, by prevention of procreation, the establishment of more institutions, including a farm school and industrial colony for the corrigible mental defectives and delinquents, more social service in the homes, and more interest in mental hygiene on the part of parents.

DEMONSTRATION BY METROPOLITAN LIFE INSURANCE COMPANY

The Metropolitan Life Insurance Company reports that, as a result of a marked reduction in the infant mortality rate at Thetford Mines, in the Province of Quebec, following a three years' demonstration by doctors and nurses, the Provincial Government has made an appropriation of \$500,000 to establish a chain of clinics throughout the Province.

As a result of a maternity center started at Thetford Mines by the Metropolitan Life Insurance Company, the infant mortality has been reduced from 95 deaths out of 281 births in 1921 to 22 deaths out of 300 births in 1923.

The Hon. L. A. Taschereau, Prime Minister of the Province, has sent a letter of appreciation to Haley Fiske, president of the Life Insurance Company, giving to the demonstration the credit for having obtained the appropriation from the government.

Legislative Matters

THE Committee on Medical Education had prepared a bill which provided for higher standards of medical education. Finding that Joseph D. Toomey, a lawyer and a member of the House from South Boston had filed a similar bill, the committee felt that it would be better to leave the field to Mr. Toomey, assuming that the public had become interested in raising the standards of medical practice in this Commonwealth.

When the bill was called in the committee hearing Mr. Toomey asked to have it withdrawn. Relying on the good faith of the petitioner, the committee was not prepared to defend the bill, and further consideration has been postponed. No explanation of Mr. Toomey's attitude has been given so far as is known.

Senate Bill 27, which provides for an appeal

from the decision of the Board of Registration in Medicine, gave the enemies of the Board an opportunity to stage an attack which was a repetition of previous efforts. The disappointed applicants for registration evidently want two boards to pass on their qualifications. If this bill becomes a law then it will be logical to ask for still another board, and so on, until every person who is ambitious to practice may find in multiplicity of boards some one that will take care of the mentally halt, lame and blind. Connecticut had an eclectic board that was easy to pass. These disappointed applicants are not seeking better preparation for practice but easier approach to the desired goal. If it can be shown that the Board of Registration in Medicine is not functioning properly, its personnel should be changed. Those familiar with the loyal service rendered by this Board know that every examination is conducted on its merit. The creation of a Board of Appeal would be an insult to honorable physicians working for the best interest of the State. It is hoped that Massachusetts will not be led to adopt a plan inspired by anyone unable to meet the very reasonable requirements of the examinations.

House Bill 293, designed to provide for a grade of nurses registered under a special designation with less training than the graduates of the better class training schools are obliged to have, and an agent of the Board of Registration was presented by Miss Carrie M. Hall. Miss Sally Johnson, Dr. Channing Frothingham and others spoke in favor of the bill, but there is the same opposition from the officials of the state hospitals as has been exhibited toward similar bills presented before previous legislatures.

We have felt that a plan that would provide for more nurses should be encouraged, and we do not feel that the objections submitted are founded on a broad conception of the needs of all the people, although the honesty of purpose of the objectors is not questioned. The feature of the bill providing for an agent of the Board of Registration of Nurses seems to have created a fear that the Board would exercise drastic authority over some training schools which are trying to do good work but which are unable to meet the standards of the large first class hospitals. This fear is based on conditions in New York State, where the officials have gone altogether too far. The Massachusetts Board is not inclined to be unreasonable, for the needs of the people are kept clearly in mind.

AN OPPORTUNITY AND A RESPONSIBILITY

AN opportunity seems to have developed whereby concerted action on the part of all members of the Massachusetts Medical Society may be productive of results for which we have striven long and diligently. The Medical Practice Act now on our Statute Books may be re-

garded as one offering reasonable assurance to the citizens of the Commonwealth that they will be protected from any very flagrant instances of inefficiency or dishonesty on the part of those authorized to practice medicine within its boundaries.

Our attention has been focused in the past few weeks upon a loophole through which fraudulent and conspicuously inefficient practitioners, graduates of notorious "diploma mills," have been able to secure the legal right to practice in a near-by State. There are such in this State beyond a doubt. It behooves the Commonwealth to strengthen her defences against any of this ilk who may seek to secure the sanction of our own Board of Registration, as well as get rid of any who may already have done so. There can be no constitutional objection to granting the Board the right to say whom they will *not* examine, any more than there is that they may say whom they *will* consider eligible for examination. A petition for a bill pertaining to the qualifications, duties, and powers of the Board of Registration was introduced at this session of the General Court by a Representative from Suffolk County. The bill appealed to the Committee of the Society into whose jurisdiction such matters naturally fall, as being precisely the sort of amendment our present law needed to uphold the hands of our Registration Board in their effort to maintain the personnel of the State's practitioners on a high plane of efficiency and integrity. This committee had indeed already drafted a bill identical in purpose and even in phraseology, with the bill above mentioned, but refrained from putting it in, preferring to support the one offered on petition of a member of the General Court.

The bill is still before the Committee on Public Health, awaiting a further hearing. It provides for amendment of the Statute of 1922 by inserting the words, "approved by the Board," in a clause which defines the medical training a candidate must have before he may be admitted to examination. After defining necessary preliminary education, the bill states that the candidate must be a graduate of a medical school acceptable to the Board, and then proceeds to particularize as to the instruction said school must provide. The introduction of these three words makes it possible for the Board, upon survey of the generally conceded acceptable schools, to refuse admission to any who offer themselves from institutions "without the pale." It is hoped that every member of the Massachusetts Medical Society will read this, and when he has will at once write to the Chairman of the Committee on Public Health at the State House, Boston, expressing as positively as he can his convictions that the above bill should pass. The best way to persuade members of the General Court that this legislation is really important is to have a convincing demonstration of

the interest of the whole body of the profession throughout the State in its enactment, and there certainly can be no simpler method of doing this than by the expenditure of two or three minutes of time and a two-cent stamp. Three or four thousand such letters would carry great weight. Let no one defer doing this because he feels that there will be enough others that do. What we need is as near a *unanimous* expression as it is possible to procure.

It should be a matter of pride with members of the medical profession that they can unite under the Society's banner and help to stamp out an abuse which is humiliating to us as citizens and hurtful to us as practitioners. Members of the Massachusetts Bar Association were not content to hide the chagrin caused by disclosures reflecting upon the legal profession, recently brought to light, but took an active part in instigating measures of protection as well as prosecuting the offending practitioners. Can the Massachusetts Medical Society afford to be any less sensitive to conduct and practice which very properly may bring criticism upon the standing of the profession? Most certainly not! **Therefore let no one be a slacker by failing to "do his bit" in putting this matter across.**

For the Committee on Medical Education and Medical Diplomas of the Massachusetts Medical Society,

CHARLES F. PAINTER, *Chairman.*

Miscellany

HARVARD MEDICAL SCHOOL DORMITORY FUND: THE CAMPAIGN IN NEW YORK

The District Chairmen of Greater New York met together at luncheon at the New York Harvard Club on January 11. The meeting was arranged because of the fact that comparatively few of the New York men seemed to have realized the importance of demonstrating their interest in the Dormitory Plan by sending in some subscription, large or small, toward it.

It was brought out that, although 865 doctors have subscribed an average of \$89 apiece to the Fund, this is less than one quarter of the total number of Harvard doctors, and it is quite essential that the interest be much more widespread. It is felt that the laity will be glad to help the fund just as soon as they realize that the doctors have done their part. The fact that each and every student, rich and poor alike, has contributed, makes it quite clear that each and every doctor can contribute—something.

The committee would like this "something" to be \$100 or more, but it realizes only too well that such a figure is far beyond the means of many men, and it is to these men in particular that it appeals for at least \$1. When at least two-thirds, and preferably three-quarters, of the

doctors have given, the committee feels that the well-to-do friends of medicine can be approached with confidence and assurance of support. One dollar demonstrates a man's interest and his approval of the Dormitory.

This doctrine of universal support appeared to be new to the New York men. They were much encouraged by it, and each one of the District Chairmen declared that there should be no difficulty in securing subscriptions on this basis. The meeting was well attended—better than the General Secretary dared to anticipate, and was distinctly enthusiastic. The organization of the New York territory was established under the leadership of Dr. John W. Brannan, the former superintendent of Bellevue Hospital, who is to act as a sort of super-chairman for the entire district.

On January 12, the general secretary was a guest at the meeting of the Harvard Medical Society of New York, where the same principle of universal subscriptions from all the doctors was introduced and accepted with evident enthusiasm. Here again the idea seemed to be a new one, the importance of which had not been before realized (in spite of the printed letter accompanying the second appeal, which was distributed to all Harvard doctors early in December!).

Since this visit of the general secretary the subscriptions from New York have increased nearly 50 per cent., which demonstrates what can be done if you try. Let each man who reads this and who has not yet subscribed send in what he can now, and thus help the committee to be able soon to say that three-quarters of the doctors have demonstrated their approval of the Dormitory.

FRANCIS M. RACKEMANN,
*Secretary of the Harvard Medical School
Dormitory Committee.*

RÉSUMÉ OF COMMUNICABLE DISEASES IN MASSACHUSETTS

DECEMBER, 1923

GENERAL PREVALENCE

The prevalent diseases showing an increase over the previous month were as follows:

	December 1923	November 1923	December 1922
Chicken-pox	1583	1201	925
Measles	1320	1096	2619
Mumps	797	587	604
Pneumonia, lobar ...	377	269	616
Scarlet fever	1550	1018	971

RARE DISEASES

Anterior poliomyelitis was reported from Boston, 5; Draut, 1; Everett, 1; Haverhill, 1; Hudson, 1; Lawrence, 5; Lowell, 6; Lynn, 1; Somerville, 1; Wellesley, 1; Whitman, 1; Winchendon, 1; total, 25.

Dog-bite requiring anti-rabic treatment was reported from Boston, 8; Fall River, 1; Lowell, 3; Mansfield, 1; Medford, 3; Tewksbury (State Infirmary), 3; Waltham, 4; total, 23.

Encephalitis lethargica was reported from Boston, 2; Danvers, 1; total, 3.

Epidemic cerebrospinal meningitis was reported from Avon, 1; Boston, 1; Easthampton, 1; Fall River, 1; Holden, 1; New Bedford, 1; Saugus, 1; total, 7.

Malaria was reported from Somerville, 1.

Pellagra was reported from Boston, 1; Tewksbury (State Infirmary), 1; total, 2.

Septic sore throat was reported from Boston, 4; Cambridge, 1; Fall River, 2; Lexington, 1; Newburyport, 2; total, 10.

Smallpox was reported from Adams, 4.

Tetanus was reported from Northampton, 1.

Trachoma was reported from Cambridge, 1; Waltham, 1; total, 2.

Trichinosis was reported from Boston, 1; Bridgewater, 1; total, 2.

PUBLICITY WORK BY THE BOSTON TUBERCULOSIS ASSOCIATION

For a special bit of work along the lines of popular health education the Boston Tuberculosis Association called to its aid the "Little church on wheels." This well-known factor to the spread of unsectarian religion was impressed into the cause of health, and was parked for a couple of hours on Saturday afternoon, January 19, in North Square. A model of the Prendergast Preventorium was shown and posters were displayed, and from the little back platform of the church Dr. Luigi P. Verde spoke in the Italian language to a gathering of a couple of hundred adults and a fringe of children. He sought to impress on his hearers the foundation principles of health and spoke in particular with reference to tuberculosis, "a disease which has many victims among those who come from a warmer climate to make New England their home." He emphasized the work of Prendergast Preventorium, and noted incidentally that during its existence, although seventy-five little girls had received the benefits of its open-air treatments and good care, there was not one among them from the Italian colony at the North End.

The attention with which the audience listened to Dr. Verde, the demand that was made by the grown-ups for the literature that was for distribution, and the fact that quite a number lingered after the address was finished to ask questions, is regarded by the Association as very encouraging, and it is planned, when the weather is favorable, to develop this kind of work, carrying it into other colonies of foreign-born citizens, and into the outlying wards of the city, possibly in the districts last named, in the form of advisory or examining clinics.

ASSOCIATION FOR THE PREVENTION AND RELIEF OF HEART DISEASE

At the annual meeting of the Association for the Prevention and Relief of Heart Disease, January 16, 1924, the following Board of Governors were elected for a term of five years:

For term of five years to 1929: Dr. Nathan E. Brill, Dr. Lewis A. Conner, Dr. B. S. Oppenheimer, Mr. Vernon Munroe, Mrs. A. F. Tiffany (Mrs. A. F. Tiffany to take the place of Mrs. Linzee Blagden).

At the Board of Governors' meeting the following officers were elected for the coming year: Dr. Haven Emerson, president; Dr. Robert H. Halsey, vice-president; Dr. William St. Lawrence, secretary; Mr. Edwin O. Holter, treasurer.

NOTES FROM THE WORCESTER DISTRICT

A SECOND elevator accident within six months occurred at the Worcester City Hospital January 12, when two new-born infants were killed. A crib loaded with babies returning to the nursery was caught in an elevator which refused to respond to the efforts of the nurse in charge to control it, and two little lives were snuffed out.

It is hoped that the unjust criticism, which is being showered upon the Superintendent and his Board of Trustees, will eventually produce results and an economical city government will respond with funds to replace obsolete apparatus, for which many petitions have been made, as well as a new obstetrical ward, which is greatly needed.

At the meeting of the Trustees of Memorial Hospital during the past week several new appointments made last fall were confirmed. Dr. Kendall Emerson was chosen chief of the surgical services in the place of Dr. Homer Gage, who resigned last summer. Dr. Gage has been elected on the Board of Trustees to fill the vacancy caused by the death of Alexander DeWitt. Dr. Edward J. Halloran was elected electro-cardiologist and Dr. William F. Holzer chief of the eye department. Dr. William Rose and Dr. Walter C. Seelye were promoted to surgeon and Dr. John W. Cahill was made assistant to the eye department in the house, and Dr. William C. Dolan assistant in the eye department in the out-patient department.

ROY JOSLYN WARD, M.D., *Reporter.*

FRANKLIN DISTRICT MEDICAL SOCIETY

THE January meeting of the Franklin District Medical Society was held at the Weldon, Greenfield, on Tuesday, January 15. Dr. F. A. Millett of Greenfield was elected president of the society in place of the late Dr. H. A. Suitor. Dr. P. F. Leary of Turners Falls, Mass., was elected vice-president.

A communication anent the proposed bill for the investigation of rural medicine was read and the society was asked to endorse this bill. It was the sense of the meeting that this bill should not be endorsed—that the society was not in favor of subsidies for doctors—that if rural communities would keep their roads passable at all seasons of the year they would be well enough served by the physicians who care for them during the summer, and that any money spent by the State for investigating rural medicine might better be spent for keeping roads passable.

Dr. W. H. Pierce of Greenfield read a very interesting and instructive paper on Diseases of the Thyroid Gland, based on his own experience with over 200 cases. The paper was thoroughly discussed in all its aspects.

CHARLES MOLINE, *Secretary.*

HAMPDEN DISTRICT MEDICAL SOCIETY

THE regular winter meeting of the society was held in the rooms of the Springfield Academy of Medicine, Springfield, on Tuesday, January 22, at 4 p.m.

Papers: Renal Circulation in Nephritis. Lantern slides. A. W. Ghoreyeb. The X-Ray in the Diagnosis of Thoracic Disease. Lantern Slides, E. L. Davis. Discussion by Fellows.

The annual assessments are now due. Please note that the bill for dues must be paid before March 1 or no dividend will be paid on assessments.

HARVARD MEDICAL SOCIETY

A MEETING was held in the Peter Bent Brigham Hospital Amphitheatre, Tuesday evening, January 22, 1924, at 8.15 o'clock.

Program: Exhibition of cases. (1) The Alpine Lamp in Tuberculosis, Dr. Edgar Mayer, Saranac Lake; (2) Heliotherapy, Dr. Plato Schwartz, Buffalo.

News Items

AMERICAN ASSOCIATION FOR THE STUDY OF GOITER.—As previously announced, the meetings were held January 23, 24 and 25, in Bloomington, Illinois. Dr. Frank H. Lahey read a paper entitled, "A Review of Another Year's Work with Thyroid Disease."

REVOCATION OF THE RIGHT TO PRACTICE.—The registration of Jacob Schwartz has been cancelled by the Board of Registration in Medicine. The Board found reason for believing that certain statements made by Mr. Schwartz were conflicting. Mr. Schwartz held a diploma issued by the St. Louis College of Physicians and Surgeons. Information recently received shows that the right to act as an incorporated body by this medical school was forfeited in

December, 1913, and has never been restored. There are several more holders of diplomas issued by this school practicing in Massachusetts.

WEEK'S DEATH RATE IN BOSTON.—During the week ending January 5, 1924, the number of deaths reported was 225, against 265 last year, with a rate of 15.11. There were 35 deaths under one year of age, against 23 last year. The number of cases of principal reportable diseases were: Diphtheria, 57; scarlet fever, 124; measles, 99; whooping cough, 111; tuberculosis, 34. Included in the above, were the following cases of non-residents: Diphtheria, 6; scarlet fever, 5; measles, 1; whooping cough, 1; tuberculosis, 6. Total deaths from these diseases were: Diphtheria, 4; scarlet fever, 2; whooping cough, 1; tuberculosis, 12. Included in the above were the following cases of non-residents: Diphtheria, 2; scarlet fever, 1; tuberculosis, 1.

During the week ending January 19, 1924, the number of deaths reported was 220, against 304 last year, with a rate of 14.77. There were 38 deaths under one year of age, against 39 last year. The number of cases of principal reportable diseases were: Diphtheria, 73; scarlet fever, 146; measles, 117; whooping cough, 22; typhoid fever, 4; tuberculosis, 51. Included in the above, were the following cases of non-residents: Diphtheria, 6; scarlet fever, 12; tuberculosis, 12. Total deaths from these diseases were: Diphtheria, 4; scarlet fever, 2; typhoid fever, 1; tuberculosis, 9.

Correspondence

AMERICAN MEDICAL ASSOCIATION

BUREAU OF LEGAL MEDICINE AND LEGISLATION

January 18, 1924.

Dr. T. J. O'Brien, Secretary,
Joint Committee on State and National Legislation,
501 Beacon Street,
Boston, Massachusetts.

Dear Doctor O'Brien:

Physicians have justly complained of two features of the federal revenue laws, namely:

(1) The imposition under the Harrison Narcotic Act of a tax greater than is necessary to give the Federal Government jurisdiction for the purposes of the act; and

(2) The denial to the physician of the right to deduct in computing his income tax certain expenses incurred in the pursuit of his profession; or otherwise expressed, the demand that the physician pay an income tax on money paid out by him as one of the expenses of his profession.

The revision of the revenue laws, now under consideration by Congress, opens the way to relief. It affords, too, through a suggestion made by the Secretary of the Treasury, the opportunity for a reduction in the tax rate on the physician's earned income as distinguished from his income from other sources.

But to obtain the benefits now within reach, the medical profession must seize the opportunity and make its wishes known to Congress. To facilitate such action, a memorandum containing arguments in support of the position taken by the medical profession and a statement of procedure to be followed

will appear in the *Journal* for January 26. To enable you to take action immediately, however, an advance copy of that memorandum is enclosed. Please procure as prompt and as effective action as is possible, by your state and county societies and by individual physicians in your state.

I shall be glad to be advised of any action taken by you.

Yours truly,

WM. C. WOODWARD, Secretary.

AS TO MARKING CARS OF PHYSICIANS

Hartford, Connecticut, January 15, 1924.

Dr. Walter L. Burrage, Secretary,
Massachusetts Medical Society.

Dear Dr. Burrage:

Some time ago I was quite interested in the articles published in the *JOURNAL* relative to the proper emblem for marking a physician's car. Connecticut has adopted letters which are placed beside the registration number, each area in the State being allowed so many numbers per letter. Bear in mind this was simply to eliminate the marking of cars with high registration numbers, which was distasteful to some owners. The thought occurred to me that it would be a good plan if physicians' cars in Massachusetts could be marked with the letter "P." registration plates being given only to those who are authorized practitioners in the State. This suggestion may be rather late, but it occurred to me, seeing the cars marked in Connecticut, although they have here no distinctive emblem for a physician's car, some using the caduceus and some the green cross.

Yours very truly,

T. L. STOUT, M.D.

DEATH NOTICES

On January 13, Dr. Albert Abrams, of San Francisco, died of pneumonia. To readers of the *JOURNAL* the name of Abrams is by no means unfamiliar. It has been the *JOURNAL's* constant endeavor in the last year and a half to expose the fallacies of the method of alleged diagnosis and treatment originated by this man. Whatever his motive, whether he was mentally unbalanced and suffered from self-deception, or whether he consciously toyed with the lives and happiness of human beings for the sake of gain, no man can say. Shakespeare says,

"The evil that men do lives after them;

The good is oft interred with their bones."

If we accept the truth of these lines, let us hope that the name of Abrams will soon be forgotten and that the crop of pseudo-scientific falsities which he planted will speedily disappear, to be superseded by a truer, if less luxuriant, growth.

Dr. GEORGE LEWIS PERRY, Chairman of the Board of Health of Athol, a retired Fellow of the Massachusetts Medical Society, died at his home in Athol, of heart disease, January 13, 1924, at the age of seventy-four. He was born in Woodstock, Vt., April 6, 1849, graduated from Dartmouth Medical School in 1879 and settled in Baldwinsville, later moving to Athol.

Dr. JAMES ALBERT HONEK, a Fellow of the Massachusetts Medical Society, died suddenly in Boston, January 24, 1924, at the age of 43.

A CORRECTION

The *JOURNAL* is informed that the statement in the issue of December 27, 1923, relating to the appointment of a committee in Public Health and Sanitation by the Boston Chamber of Commerce, should have given the name of Mr. George F. Schraft, and not George E. Schraft, as one of the members of this committee.

NOTICES

The Massachusetts Medical Society

STATED MEETING OF THE COUNCIL

A stated meeting of the Council will be held in John Ware Hall, Boston Medical Library, on Wednesday, February 6, 1924, at 12 o'clock noon.

BUSINESS

1. Report of Committee of Arrangements. Will the Council change the date of the annual meeting on account of a recent change of the date of the annual meeting of the American Medical Association to June 9-13?
2. Report of the Committee on Membership and Finance, on membership.
3. Reports of committees appointed to consider petitions for restoration to fellowship.
4. Appointment of delegates.
5. Report of Treasurer and Auditing Committee.
6. Report of Committee on Membership and Finance, on finance, with a budget for 1924.
7. Report of Committee on State and National Legislation.
8. Report of President and Secretary on vote as to venal lawyers in lawsuits against Fellows.
9. Report of the committee on a department of education of the public in health matters.
10. Appointment of a committee of the Council, at the instance of the Committee on Ethics and Discipline, under the terms of Chapter I, Section 9, of the By-Laws, to consider advertising by Fellows of the Society.
11. Incidental business.

WALTER L. BURRAGE, Secretary.

January 30, 1924.

BOSTON CITY HOSPITAL

THE BOSTON CITY HOSPITAL will hold a Staff Clinical Meeting in the Cheever Surgical Amphitheatre, Friday, February 1, 1924, at 8:15 p. m.

"Alcoholism" of the Present Day.—H. B. Gray, Dean Bradley, F. B. Mallory.

Discussion opened by Reid Hunt, H. C. Lythgoe and E. C. Merrill.

Physicians, medical students and nurses invited.

JOHN J. DOWLING, Superintendent.

NEW ENGLAND PEDIATRIC SOCIETY

The eighty-third meeting of the New England Pediatric Society will be held at the Boston Medical Library on Friday, February 8, 1924, at 8:15 p. m.

The following papers will be read:

1. Indications and Contraindications for Circumcision in Children, Thomas R. Lanman, M.D., Boston.
2. Foreign Bodies in the Trachea and Bronchi, D. Crosby Greene, M.D., Boston.
3. Some End Results of Pediatric Practice as Seen in Adolescents, Roger I. Lee, M.D., Cambridge, Mass.

Light refreshments will be served after the meeting.

EDWIN H. PLACK, M.D., President.

JOSEPH GARLAND, M.D., Secretary.

WORCESTER DISTRICT

The program for the next meeting of the Society, to be held at Memorial Hospital, February 13, has been announced as follows:

Abscess of the lung with report of cases. Drs. Miller and Alton.

Mumps Meningitis. Report of case with autopsy. Dr. Sparrow.

X-ray diagnosis of anencephalic monster. Dr. Cook.

Primary cancer of liver. Autopsy. Dr. Kinnicutt.

CHANGE IN DAY OF DR. CABOT'S CLASS

The weekly clinico-pathological exercises in which the Case Records are discussed have been held during the autumn and the first part of the winter on Tuesdays at quarter to twelve. The first week in February the day of meeting will be changed to Saturday. There will be no class on Tuesday, February 5. The time and place of meeting will remain unchanged, quarter to twelve in the pathological amphitheatre of the Massachusetts General Hospital.

DISEASES REPORTED TO MASSACHUSETTS
DEPARTMENT OF PUBLIC HEALTH

WEEK ENDING JANUARY 5, 1924

Disease	No. of Cases	Disease	No. of Cases
Anterior poliomyelitis	4	Ophthalmia neonata	
Chicken-pox	310	torum	13
Diphtheria	200	Pneumonia, lobar	101
Dog-bite requiring anti-rabic treatment	5	Scarlet fever	302
Encephalitis lethargica	1	Septic sore throat	1
Epidemic cerebrospinal meningitis	2	Syphilis	56
German measles	14	Suppurative conjunctivitis	6
Gonorrhea	110	Tuberculosis, pulmonary	105
Influenza	9	Tuberculosis, other forms	9
Malaria	1	Typhoid fever	3
Measles	355	Whooping cough	94
Mumps	210		

SOCIETY MEETINGS

DISTRICT SOCIETIES

Bristol South District Medical Society:

The annual meeting will be held in New Bedford, May 1, 1924. Essex North:—Annual meeting at Lawrence General Hospital, May 7, 1924.

Essex South District Medical Society:

March 19, 1924.—Salem Hospital. May 7, 1924.—Annual meeting, Relay House, Nahant, in conjunction with Lynn Medical Fraternity.

Franklin District:—Society meets at Greenfield the second Tuesday of March, May, July, September. Annual meeting in May.

Hampden District:—The meetings for the year are as follows: January, 1924, at Springfield; April, 1924, at Springfield; annual meeting.

Hampshire District Medical Society:

Meetings held bi-monthly, the second Wednesday in the month, at Boyden's Restaurant, Northampton.

Middlesex South District Medical Society:

February 27, 1924.—Combined meeting with the Surgical Section of Suffolk District at the Boston Medical Library.

March, 1924.—Hospital meeting; place not yet determined.

April, 1924.—Annual meeting.

Norfolk South District:—Meetings first Thursday of each month at 11:30 a. m., February, March, April and May, at United States Hotel, Boston. The February and May meetings are stated meetings.

Suffolk District Medical Society:

February 27, 1924.—Meeting of Surgical Section, in association with the Middlesex South District at the Boston Medical Library at 8:15 p. m.

March 28, 1924.—Meeting of the Medical Section, in association with the Boston Association for the Prevention and Relief of Heart Disease, at the Boston Medical Library at 8:15 p. m.

April 26, 1924.—Annual meeting to be held at the Boston Medical Library at 8:15 p. m.

Worcester District:—The meetings for the year are as follows:

February 13 at Memorial Hospital, Worcester. March 13 at City Hospital, Worcester.

April 10.—A public meeting.

May 8.—Annual meeting.

STATE, INTERSTATE AND NATIONAL SOCIETIES

Schedule of meetings of the New England Dermatological Society:

Wednesday, February 13, 1924, at 3 p. m., in the Skin Out-Patient Department, Massachusetts General Hospital.

Wednesday, April 9, 1924, at 3 p. m., in the Surgical Amphitheatre, Boston City Hospital.